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**A study of perceptions of individual
participants of a client group
undertaking a series of meetings supported by a
Group Support System (GSS)**

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The research reported in this thesis is part of a larger program of research currently in progress at Curtin University of Technology. The focus of the research program is the use of computer-based technologies to support group work. These technologies include MeetingWorks¹, GroupSystems², Decision Conferencing³, and Lotus Notes⁴.

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¹ Enterprise Solutions based on the original work of L. Floyd Lewis
² Ventana Corporation
³ Phillips (1989)
⁴ IBM

Finally, I would pay tribute to my parents, Fred and Peggy, who provided a supportive and formative environment over some 20 years that allowed an inquiring and determined mind to develop.

NOTE ON PRESENTATION

The Publication Manual of the American Psychological Association has been used as a guide for the style and format of this thesis. In particular, the referencing format has been followed closely. (American Psychological Association [APA] , 1983)

The Macquarie Dictionary (Delbridge, 1985), which features Australian English, has been used as the reference for spelling and word usage.

ABSTRACT

A longitudinal field study was conducted to provide interpretation and understanding as to how perceptions of a group of participants changed with repeated use of a Group Support System (GSS). This is a more in-depth and participant-orientated focus than some past research. Past GSS research has been dominated by single occasion usage with settings often involving student subjects. Longitudinal research is necessary because changes take place over time and groups, teams, and meetings are ongoing. Research in field settings is necessary to acknowledge the complexity of real world GSS activity and improve the relevance of findings to GSS practice and research.

An original and significant aspect of the research was that the inquiry process was conducted in an interpretivist paradigm where emphasis was placed on participants' constructions of the GSS experience. An inductive approach was adopted where findings were grounded in, and generated from, qualitative data. The criteria for assessment of the relevance and rigour of the research were credibility, transferability, confirmability and dependability (Guba & Lincoln, 1989). The primary research data came from in-depth interviews with participants.

The field setting concerned a group of seven participants from a local government organization, meeting face-to-face, and undertaking a strategic planning task. The process of the strategic planning task involved five GSS sessions held at the GSS Facility at Curtin University in Perth. Active process and technical facilitation was provided by an experienced two person facilitation team, who were external to the client organisation.

There were two major findings. The first was a process finding of familiarisation that occurred over the first two GSS sessions. Participants were initially confronted with a foreign environment including unfamiliar people, roles, task, process, and technology. As participants experienced the GSS session, their feelings changed from fear and nervousness, to comfort and confidence. Associated with the improvement in comfort, there was improved participation, manifest as broader and greater participation at the second GSS session. The recommendation for GSS practice is to prepare participants in advance for the unfamiliar environment so as to realise the benefits of GSS more rapidly. Based on the identified changes in perceptions and behaviour, the recommendation for GSS research is to study contexts beyond single occasion usage.

The second finding was a process finding of emerging confusion. Despite familiarisation with the environment, participants, when confronted with a radical change in process, as well as a difficult task about which they had preconceptions, became confused about the task, the goal, and the process. The behaviour of a participant, identified as playing the role of the farrago (Stohl & Schell, 1991), led to further confusion. Consequences included a perceived lack of achievement, and negative feelings. The recommendation for GSS practice is for facilitators to clarify the goals, the task and the process for participants. Further research is needed to ascertain what form that clarification might take. A suggestion is that it can be facilitated by maintaining familiar processes, and preparing participants in advance for difficult tasks. There are two recommendations for further GSS research. The first is to study in a field setting in order to uncover complex phenomena that are relevant to GSS practice. The second is to employ research methodologies and designs that permit discovery of emerging theory which is grounded in data.

In addition to the two major findings, tentative but powerful, was the identification of ways in which the GSS ideal of even participation could be compromised. Firstly, an uneven distribution of *verbal* participation in an established group seems likely to persist in the GSS environment. Furthermore, the GSS facilitator may struggle against the existing group norms to alter the distribution of participation. Secondly, in groups where participants differ in their level of computer skills, computer-experienced participants may be able to dominate *written* participation compared to computer novices. Computer novices may also suffer from computer anxiety further compromising their ability to participate. Thus equal access to GSS resources may not be sufficient to ensure even participation. The tentative nature of this finding is a signal for further research.

TABLE OF CONTENTS

Chapter 1. The Research Problem	1
1.1. Introduction	1
1.2. Objectives and Research Questions	1
1.2.1. Research Questions	2
1.3. Background and Significance of Study	3
1.3.1. Meetings	3
1.3.2. Groups	5
1.3.3. Problems of Meetings and Groups	8
1.3.4. Information Technology	10
1.3.5. Group Support Systems (GSS)	11
1.3.5.1. Definitions	11
1.3.5.2. The GSS in this Study	16
1.3.5.3. Facilitation	20
1.3.5.4. Features of GSS Technology	23
1.3.5.5. Multi -Criteria Decision Making (MCDM) and GSS	27
1.3.5.6. Commercial GSS Activity	29
1.3.5.7. Diffusion of the GSS: Current MeetingWorks Sites	31
1.3.5.8. GSS Technologies Compared and Contrasted	31
1.3.5.9. Issues of Implementation of GSS	36
1.3.6. Perception and Perceptions	38
1.3.7. A Series of GSS Supported Meetings: Change over Time	43
1.3.8. Relevance and Rigour	45
1.3.9. Disciplinary Domains of GSS	46
1.4. Summary	47
 Chapter 2. Literature Review	 48
2.1. Introduction	48
2.2. GSS Research Activity	48
2.2.1. Mixed findings amongst GSS studies	49
2.3. Theory in GSS	52
2.3.1. Adaptive Structuration Theory (AST)	53
2.3.2. Other perspectives	58
2.3.3. Summary	59
2.4. Past GSS research on Perceptions and Longitudinal Development	60
2.4.1. Zigurs, DeSanctis and Billingsley (1991)	61
2.4.2. Chidambaram, Bostrom and Wynne (1990-91)	65
2.4.3. Gopal, Bostrom and Chin (1992-93)	67
2.4.4. Chidambaram and Bostrom (1993)	74
2.4.5. Miranda and Bostrom (1993)	76
2.4.6. Chudoba (1993)	78
2.4.7. Fuller and Trower (1994)	80
2.4.8. Garcia, Lewis and Keleman (1989)	86

2.4.9. Dennis (1991)	88
2.4.10. DeSanctis, Poole, Dickson and Jackson (1993).....	89
2.4.11. Barent, Krcmar, Lewe and Schwabe (1995)	93
2.5. Human centred IS Research	97
2.6. Summary	99
Chapter 3. Research Paradigm, Strategies and Method.....	101
3.1. Introduction.....	101
3.2. Choice of Paradigm.....	104
3.2.1. Alternative Paradigms.....	104
3.3. Choice of Research Strategy	108
3.4. Choice of Method of Data Collection and Analysis	113
3.5. Summary	116
Chapter 4. Research Design.....	117
4.1. Introduction.....	117
4.2. Methodology	119
4.2.1. Emphases	119
4.2.3. Summary	123
4.3. Preliminary Field Work	124
4.4. Field Work	126
4.4.1. Unit of analysis	126
4.4.2. Choice of subjects	127
4.4.3. Interviews.....	128
4.4.3.1. Overview	128
4.4.3.2. Pre-GSS Interview	132
4.4.3.3. Post-session interviews	132
4.4.3.4. Summary	135
4.4.4. Transcription.....	136
4.4.5. Observation.....	138
4.4.6. Documentation.....	139
4.5. Field Access	139
4.6. Practical Field Work Problems	140
4.7. Researcher's Perspective	141
4.7.1. Ethics	141
4.7.2. Politics	144
4.7.3. History and Research Traditions.....	144
4.7.4. Conceptions of self and other	145
4.7.5. Summary	147
4.8. Truth and Trustworthiness	148
4.9. Summary	158
Chapter 5. Case Description	159
5.1. The Organisation.....	159
5.2. Contracting.....	160
5.3. Participants.....	161
5.4. Facilitation team	165
5.5. Researcher.....	166

5.6. Task and Process.....	167
5.7. GSS Technology	168
5.7.1. Level Two GSS MCDM Implementation.....	171
5.8. Summary.....	173
Chapter 6. Findings and Discussion	174
6.1. Introduction.....	174
6.2. Pre-GSS: Briefing Meeting.....	174
6.3. Pre-GSS: Interview One	177
6.3.1. Introduction.....	177
6.3.2. Group Decision Making.....	179
6.3.3. Meetings.....	181
6.3.4. Reactions to Graphic of Meeting Situation.....	186
6.3.5. Planning	189
6.3.6. Facilitator	191
6.3.7. Chairperson.....	192
6.3.8. Consultants.....	195
6.3.9. Computers.....	197
6.3.10. Expectations and Worthwhile	200
6.3.11. Client Sponsor Motivations	202
6.3.12. GSS Experience	203
6.3.13. Summary	204
6.4. Post-GSS: Interviews Two to Six	206
6.4.1. Introduction.....	206
6.4.2. Overall	209
6.4.2.1. Discussion of "Overall"	223
6.4.3. Comparison of first session with monthly meetings.....	230
6.4.3.1. Discussion of "Comparison of first session with monthly meetings"	236
6.4.4. "Anything else"	238
6.4.4.1. Discussion of "Anything else"	245
6.4.5. Comparisons between sessions.....	245
6.4.5.1. Discussion of "Comparisons between sessions"	249
6.4.6. Changes across all sessions.....	250
6.4.6.1. Discussion of "Changes across all sessions".....	253
6.4.7. Technology.....	253
6.4.7.1. Discussion of "Technology"	268
6.4.8. "Facilitator"	269
6.4.8.1. Discussion of "Facilitator"	282
6.4.9. Group and group interaction	285
6.4.9.1. Discussion of "Group and group interaction"	296
6.5. Further Investigation and Conceptualisation	298
6.5.1. The familiarisation process.....	298
6.5.2. Implications for GSS design and application.....	308
6.5.3. The confusion process.....	312
6.5.4. Conceptualisation of the confusion process.....	316
6.5.5. Implications for GSS application and design.....	319

6.6. Hypothesis Formulation.....	322
6.7. Summary.....	324
Chapter 7. Literature Review Post Findings.....	325
7.1. The familiarisation process.....	325
7.1.1. Computer anxiety and computer skills	328
7.2. Confusion.....	335
7.2.1. Farrago.....	336
7.2.2. Preconceptions: Conflicting theories of negotiation.....	341
7.2.3. Leadership.....	342
7.3. Summary.....	344
Chapter 8. Conclusions	345
8.1. Summary.....	345
8.2. Study Limitations.....	350
8.3. Implications for GSS Practice.....	359
8.3.1. Facilitators	359
8.3.2. Designers.....	362
8.4. Implications for GSS Research.....	364
8.4.1. Findings	364
8.4.2. Paradigm and Methodology	366
8.5. Conclusion	369
Appendices	370
Appendix A Chronology of Events	371
Appendix B Research Contract.....	373
Appendix C Documentation Provided for Participants Prior to GSS Sessions.....	376
Appendix D Electronic Data Files Description	382
Appendix E Auditing of Transcripts.....	384
Appendix F Interview Instruments and Prior Codes.....	389
Appendix G Extract of Nudist Retrieval Interview One	399
Appendix H Auditing of Prior Coding.....	409
Appendix I Report Extract: Parks and Reserves Dept. Planning for the Future	412
Appendix J Diary Sample	422
Appendix K Extract of Field Notes Made During Session Observation.....	426
References.....	436

LIST OF FIGURES

1.1	A categorisation of group tasks.....	15
1.2	The GSS facility at Curtin University, Perth, Western Australia	17
1.3	The perceptual process	40
2.1	An overview of the adaptive structuration process	55
2.2	Schematic presentation of conceptual framework relating beliefs, attitudes, intentions, and behaviours with respect to a given object	72
2.3	Schematic presentation of conceptual framework for the prediction of specific intentions and behaviours	73
2.4	Model of team use of a GSS based on adaptive structuration theory	91
4.1	A matrix displaying the research design for the interviews.....	129
5.1	Organisation chart of Parks and Reserves Department.....	162
5.2	A five step strategic planning process.....	168
5.3	The GSS facility at Curtin University, Perth, Western Australia	169
6.1	Organisation chart of Parks and Reserves Department.....	179
6.2	Graphic of a meeting situation.....	187
6.3	The familiarisation process.....	304
6.4	The confusion process.....	313
7.1	Sense making in GSS entry.....	326

LIST OF TABLES

1.1	Problems of groups	9
1.2	Time and place dimensions of meetings with example approaches	12
1.3	Key differences in types of meetings	14
1.4	MeetingWorks software description	18
1.5	Key GSS facilitator behaviours	21
2.1	Empirical GSS studies with a longitudinal aspect	61
2.2	Constructs described in Gopal, Bostrom and Chin (1992-93, p.53)	68
2.3	Summary of student subject studies with a longitudinal aspect	82
2.4	Lessons learnt about continuous improvement (CI) meetings	94
2.5	Summary of GSS field studies with a longitudinal aspect	96
3.1	The research process	103
3.2	Basic assumptions of interpretivism and positivism	105
3.3	Text analysis framework	114
4.1	Research stages and activities	118
4.2	The field interview compared with the survey interview	130
4.3	Rules of transcription	137
4.4	Research ethics	142
4.5	Summary of techniques for establishing trustworthiness	151
5.1	The GSS script	170
6.1	The GSS script (Table 5.1 repeated)	208
6.2	Response summary for code "over": Overall about the session	224
6.3	Response summary for code "anyt": Anything else	244
6.4	Response summary for code "sesnct": Comparison between sessions one and two	249
6.5	Response summary for code "chan": Changes across sessions	252
6.6	Response summary for code "tech": Technology	266
6.7	Response summary for code "faci": Facilitator	280
6.8	Response summary for code "grou": Group and group interaction	294
6.9	The familiarisation process: The foreign environment	300
6.10	The confusion process	311
7.1	Facilitation tactics for managing the familiarisation process	327
7.2	Aspects of the experience of novice PC users	331
7.3	Suggested computer anxiety questions to identify computer anxious participants prior to GSS sessions	334
8.1	Criteria for judging interpretivist research	352
8.2	Summary of techniques for establishing trustworthiness	353
8.3	Summary of this study context as an aid to determining transferability	355
8.4	Managing familiarisation: Suggested facilitation tactics	360
8.5	Managing confusion: Suggested facilitation tactics	361
8.6	Functions to be provided in GSS software	363
8.7	Recommendations for further research	368

Chapter 1. The Research Problem

1.1. Introduction

Group Support Systems (GSS) is a field of study concerned with *supporting intellectual collaborative work through the application of computer based information systems* (Jessup & Valacich, 1993, p. 5). Hardware (PC networks) and software for these systems has evolved since Douglas Engelbart experimented in the 1960s (Engelbart, 1963; 1973). Forms of collaborating have evolved over thousands of years of human interaction. However, the technology makes new forms of interaction possible. The understanding of those forms of interaction presents intriguing issues to researchers, developers and users.¹ The volume of current literature on computer-based and non-computer based collaborative work bears testimony to this fact. This study seeks to improve our knowledge of the application of Group Support Systems (GSS) technology in a world where collaboration is a fundamental and necessary human activity, and where collaboration is becoming more important. The latter being fuelled by the globalisation of business, and the associated need for sharing of specialised skills, knowledge, and information. An important focus for collaborative work, adopted in this study, is the face-to-face group meeting.

This chapter begins with a statement of objectives and research questions. The background and significance of the study area is then developed.

1.2. Objectives and Research Questions

The objectives of the study are to investigate GSS meetings. The views of participants will be represented and used as a basis for building theory with respect to GSS meetings, and informing GSS facilitators and designers, and others interested in the workings of computer-aided collaboration.

¹ Including participants, process facilitators, technical facilitators and managers. The first three are major roles carried out by people in the GSS activity. Participants are members of a group faced with a task, who contribute content about the task. Process facilitators (often called facilitators) help participants with the process of the task, and technical facilitators (often called chauffeurs) help with technical support of the process.

This study seeks to provide interpretation and increase understanding with respect to the research questions below.

1.2.1. Research Questions

- 1) How do perceptions of the GSS activity change for individual participants of a client group undergoing a series of GSS supported meetings over time?
- 2) What are the implications for the design and implementation of GSS meetings?

The first question is the focus or core of this study, whereas the second question is pursued by way of reflections, extrapolations or inferences from analysis associated with the pursuit of the first.

Note that the implications for the design and implementation of GSS meetings are primarily directed at GSS facilitators and software designers. Facilitators are responsible for designing and conducting GSS meetings and thus play a critical role.² Software designers are responsible for designing structures and resources for facilitators and participants to apply, thus they too shape the form of GSS meetings.

² Facilitators in commercial GSS are usually external to the group and provide active and flexible process facilitation (Bostrom, Anson, & Clawson, 1993). This is the setting for this study. It is noted, however, that research has been undertaken without such facilitation, relying only on the technology, or the group, or both (Zigurs, DeSanctis & Billingsley, 1991; Chudoba, 1993; DeSanctis, Poole, Dickson & Jackson, 1993) .

1.3. Background and Significance of Study

1.3.1. Meetings

Meetings are a commonly encountered form of collaboration that have provided a stimulus for GSS. Haynes (1988, p. 9) defines a meeting as:

a gathering of three or more people sharing common objectives, where communication (verbal and/or written) is the primary means of achieving those objectives

A dictionary definition is "an assembling as of persons for some purpose" (Delbridge, 1985, p. 1070) Whilst the first definition is more specific and captures the concept of *communication* both definitions share a connotation of people *coming together* with some *purpose*. The meetings encountered in this study are representative of these meanings.

People meet for a variety of reasons; to pool knowledge, to gain synergy from an interaction of minds, to share the load of undertaking a task, to satisfy socio-emotional needs and often because they feel compelled. Meetings are ubiquitous. Within organisations people interact at staff meetings, committees are formed and delegated tasks, boards meet, management meets (executive, middle and operational), teams are formed to work on projects and management, and staff participate in planning and decision making. Organisations form advisory boards including people from outside the organisation to provide advice and information. Between organisations, representatives from different sectors of an industry collaborate to form policy, discuss government legislation and agree standards. Political parties form policies, and parliament meets to legislate and debate. Unions meet employers to bargain for workers' conditions. Ministers, diplomats and trade delegations from different countries meet to posture, inform and negotiate.

One could continue to add to the above examples, but the point has been made, there are many meetings, and many different kinds of meetings. The variety of activities at meetings include communication, negotiation, problem solving and decision making. Meetings also display a variety of organisational forms including the board, the committee, the task force, and the team. The importance of committee meetings to organisational decision making is captured by Tropman (1980):

The modern committee is the centre of decision making activity. Almost nothing is done, no decision made, no breakthrough accomplished, unless it is passed upon or actually created by one or more boards or committees.

Meetings have been noted in the literature as consuming large amounts of organisational resources particularly manager's time. Mosvick and Nelson (1987) described the average manager and technical professional as spending 25% of their working week in meetings, with upper/middle management at 40% and senior executives at 80%. Panko (1993) in reviewing "use of time" studies has noted that knowledge workers including managers, executives and professionals spend from 25% to 70% of their day in face-to-face interactions. In particular, conference room meetings take up about 20% of the manager's working day. Furthermore, planning and decision making account for a fifth of working days and about a fifth of meetings. Given that GSS was designed for meetings, Panko is plausible when he concludes that GSS research "has a large and important topic" (p. 174).

Supported by surveys (Rice, 1973; Goldhaber, 1974; Mosvick, 1982; 1986) Mosvick and Nelson (1987, pp. 3-4) claim that most of American business is undertaken in meetings, managers spend lots of time in meetings, the frequency of meetings is growing, and yet the potential productivity of meetings is not realised. The authors claim that the trends placing greater emphasis on the frequency and importance of business meetings include: (1) the requirement to change with accelerating change in the business environment, (2) the need to coordinate more interdependent units, and (3) trends toward participative management, including quality circles.

Johansen (1988) has noted the trend in large US organisations toward business *teams* that meet and interact over the life of some project. He describes (pp. 6-8) a number of trends that are shaping this response including: (1) "industry deregulation", (2) "decreasing numbers of middle managers" (3) "a trend towards contract work" (4) "mergers and acquisitions" (5) "an increasing geographic spread for companies" (6) "team orientated companies as models" and (7) "group orientated performance ratings". Johansen posits:

Business teams have a strong need to get a job done and an openness to new ways of doing so. They are ripe for innovations, one of which could be a form of computer support for teams (p. 9)

Drucker (1988) has predicted a new form of organisation evolving, underpinned by the capabilities of information technology, and the recognition of information as a resource. He describes the new organisation as that of the "information - based organisation, the organisation of knowledge specialists" (p. 53). Drucker states that such an organisation would have less levels of management and less managers. However, the pool for conducting meetings may grow as workers begin to work in semi-autonomous work groups. In the less hierarchical, more flexible organisation, work could be undertaken by task-force teams with task-force leaders that would work on assignments that would change with time. Such an organisation would thus display some of the features described by Johansen.

New methods of organising, together with the challenge to compete in markets where speed of response could make a difference to survival, mean that meeting structures and processes require support. Dennis, George, Jessup, Nunamaker, and Vogel (1988), researchers of computer support for collaborative work, chose the term Electronic Meeting Systems (EMS) to capture the salience of meetings. Meetings, however, are also places where groups interact. The term Group Support Systems captures the distinctive feature of *group*, the topic of the following section.

1.3.2. Groups

Groups are often the focus of study in the social-psychology literature. Forsyth (1983, pp. 7-8) provides a number of definitions from other authors:

A group exists when two or more people define themselves as members of it and when its existence is recognized by at least one other. (Brown, 1988, pp. 2-3)

A group is a collection of individuals who have relations to one another that make them interdependent to some significant degree. (Cartwright & Zander, 1968, p. 46)

A group is an aggregation of two or more people who are to some degree in dynamic interrelation with one another. (McGrath, 1984, p. 8)

A group is a social unit which consists of a number of individuals who stand in (more or less) definite status and role relationships to one another and which possesses a set of values or norms of its own regulating the behavior of individual

A *meeting* might be thought of as an episode of interaction where the persons meeting may display more or less developed *group* characteristics.

Tyson (1989, p. 2) notes that groups are rarely static and that a gathering of individuals, relatively unorganised, may develop through organisation into a group, and at a more highly organised level into a team. His characteristics of a group, given below, are inclusive of the influence, interdependence and purpose characteristics. Indicators from the study, based on interview and observation, are provided in brackets to show how the study participants qualify as a group.

- *members interact with one another* (interacted during GSS sessions)
- *members have an awareness of group identity and "boundary"* (the facilitation team was not considered part of the group; two visitors were not considered part of the group)
- *members have at least a minimum set of values, roles and norms which regulate their interaction and differentiate them from other groups* (it was accepted that some members were quiet, others were vocal, noisy and humorous; it was accepted that there was a "boss"; members described themselves as belonging to one department; members described their group as a good group, a group in which you could speak your mind)
- *members have a common task or a more or less clear group goal which gives direction and limits to their activities* (the objective was to determine future directions for the department over the next three years and this was to take place over five GSS meetings)
- *members have established identifiable patterns of communication, status, influence and interpersonal attraction* (certain people were "known" by group members to behave in predictable ways)

Tyson notes that there is a both a *task* orientation (eg producing a plan) and a *relationship* maintenance orientation (eg remaining motivated, satisfied, and supportive) to group work. The role of GSS technology could be characterised as providing support for task achievement through the provision of structured processes. On the other hand, a facilitator's role could be characterised as providing support for both task achievement and maintenance of positive relationships among members. The necessity of a balance between both is one reason why most real world GSS application demands the services of a facilitator. (Bostrom, Anson & Clawson, 1993)

1.3.3. Problems of Meetings and Groups

Whilst the above indicates the importance of meetings, there is considerable evidence pertaining to the problems of meetings. Based on their five year survey of one thousand managers and technical professionals from high technology companies, Mosvick and Nelson (1987) identified numerous problems, most of which they claimed to be "basic procedural task-orientated" (p. 18) rather than socio-emotional problems. The most frequently referenced problems were:

- getting off the subject
- no goals or agenda
- too lengthy
- poor or inadequate preparation
- inconclusive
- disorganised

(Mosvick & Nelson, 1987, p. 19)

Haynes (1988) reported on a survey of 635 executives that showed similar results to Mosvick and Nelson. Meeting problems that the executives felt were of concern were:

- drifting off subject
- poor preparation
- questionable effectiveness
- lack of listening
- verbosity of participants
- length of meeting
- lack of participation

(Haynes 1988, p. 13)

Mosvick and Nelson's insight that the most reported problems were to do with procedure and task orientation may in part be due to their questioning about *meetings* rather than about *groups*. There is considerable reporting in the literature of group dynamics about "problem" dynamics of groups, particularly as pertaining to decision making. These are briefly described in Table 1.1 and include; *groupthink* (Janis, 1972) (resulting in failure to consider alternatives), *social loafing* (Williams, Harkins & Latane, 1981) (letting others do the work and thus reducing group performance), *risky shift* phenomenon (Wallach, Kogan & Bem, 1962) (the capacity

for groups to shift their view to extremes), *diffusion of responsibility* (Forsyth, 1983; Latane & Nida, 1981) (resulting in risky decisions and lack of accountability) and *deindividuation* (Diener, 1979) (lack of individual identification within a group - behaviour which can lead to atypical extreme behaviour). (Lewis, 1993)

Additionally, there are difficulties relating to task accomplishment including an emphasis on socio-emotional needs to the detriment of task (Delbecq, Van de Ven, & Gustafsen, 1975) and failure to adequately define a problem before making judgments (Maier & Hoffman, 1960). (Lewis, 1993)

Table 1.1 Problems of groups

Group dynamic	Characteristics	Negative Effects
groupthink (Janis, 1972)	<i>a deterioration of mental efficiency, reality testing, and moral judgment that results from in-group pressures</i> (Janis, 1972, p. 9)	poor decision choice resulting from limited consideration of alternatives and their consequences
social loafing (Williams, Harkins & Latane, 1981)	reduction of effort by individuals when working in groups	potential productivity of a group as "sum of individuals" is not realised; individuals reduce efforts to match that of lower performers
risky shift (Wallach, Kogan & Bem, 1962)	the capacity for groups to make riskier decisions than individuals	the negative consequences of risky decisions
deindividuation (Diener, 1979)	the capacity for individuals to lose themselves in a group such that they feel as though they no longer stand out as individuals	atypical extreme behaviour including increased risk taking, lack of conscious planning, lack of concern for others
diffusion of responsibility (Forsyth, 1983; Latane & Nida, 1981)	a lack of personal accountability in group situations	less individual effort put into task; more extreme decisions made, and also less likely to be individually committed to the implementation.

Whilst there are numerous problems of groups, it is important to note that there are numerous potential benefits to be obtained from working in groups. Dennis (1991) on reviewing group literature, includes the benefits of more information (a group has more information than any one member), synergy (the interaction of individuals can produce something greater than the parts), more objective evaluation (other members can provide feedback), stimulation (one person's idea can stimulate another's thinking) and learning (there is capacity for individuals to learn from each other in a group situation) (p. 44). In addition to procedural benefits a group can satisfy socio-emotional needs such as the need to belong, to be respected, to control and be controlled, to undertake social comparison to validate our beliefs, and to gain social support. (Forsyth, 1983)

1.3.4. Information Technology

The challenges of meetings, teams and groups have in part been used as a stimulus for the development of GSS, however, development has also been undertaken in a background of information technology growth. The technologies that underpin collaborative work have become more powerful, cheaper, easier to use and more widespread. There are now tens of millions of PCs many of which are connected via networks - "10 million PC networks installed by 1995" (Petre, 1992 citing Intel). The *groupware*³ market has grown considerably - "from \$11 million in 1991 to \$600 m in 1995" (Petre, 1992, citing IDC). PCs have become more portable in the form of laptops and even palmtops. Graphical User Interfaces (GUI) are making software easier to use. Telecommunications have improved - the use of optical fibre is enabling the transmission of larger volumes and more diverse data including video. The evolution of PC networks and associated software is thus providing a platform for new ways of collaborating, and a stimulus for new ways of thinking about collaboration.

³ Johansen (1988) defines *groupware* (Johnson-Lenz & Johnson-Lenz, 1980) as:
 a generic term for specialized computer aids that are designed for the use of collaborative work groups. Typically these groups are small, project-orientated teams that have important tasks and tight deadlines. Groupware can involve software, hardware, services, and/or group process support (p. 1)

1.3.5. Group Support Systems (GSS)

1.3.5.1. Definitions

Johansen (1988, p. 10) has noted the difficulty of giving names and definitions to emerging technologies, perhaps reflecting the tension between forces that produce new tools and those that seek to work out what to do with them. There is a research community whose members meet at the Hawaii International Conferences on System Sciences (HICSS), that rallies to the term GSS. Terms such as GDSS (Group Decision Support Systems) (DeSanctis & Gallupe, 1985), and EMS (Electronic Meeting Systems) (Dennis, George, Jessup, Nunamaker & Vogel, 1988) have been used in the past and continue to be used by some researchers.

The use of the term GDSS, reflected roots in the DSS movement (Sprague & Watson, 1986) and a focus on *decisions*. DeSanctis and Gallupe (1985) described GDSS thus:

The concept of 'group decision support' builds on the well known idea of a DSS. A group decision support system (GDSS) is an interactive computer-based system which facilitates solution of unstructured problems by a set of decision makers working together as a group. ... the GDSS should improve the decision making process and/or the decision outcomes of groups...(p. 191)

The "D" was dropped from GDSS at HICSS 93 (Valacich & Dennis, 1993) in order to capture a broad range of activities, such as communicating, information sharing, planning, decision making, and problem solving. Valacich and Dennis, described the reason for the name change as, "to reflect our understanding that this technology is more often used to support general group and project team work rather than decision making per se" (p. 82).

EMS, like GSS, was also an attempt to capture a broad range of activities. Dennis et al. (1988), described EMS as:

more than just decision making; they focus on communication. They move beyond the GDSS decision room, where groups must meet at the same time in the same place, to meetings that can be conducted across time and space (p. 591)

In this description, Dennis et al. highlighted the new time and space dimension for meetings made possible by the technology. However, for whatever reasons, EMS does not enjoy the same currency as GSS.

The technology products that HICSS GSS researchers refer to, include GroupSystems⁴, MeetingWorks⁵ and SAMM⁶, all products that were originally designed to support groups working at *face-to-face meetings* (which is the setting for this study). This type of meeting is the traditional meeting setting, rather than the "different time and place" meetings made possible through communication technologies.

Johansen (1988) presents a framework for considering the time and place dimensions of meetings. He considers some 17 emerging approaches to supporting teams of which a few examples are presented in Table 1.2. At the time, Johansen considered GDSS to be focussed on the same time, same place setting.

Table 1.2 Time and place dimensions of meetings with example approaches (Adapted from Johansen, 1988, p. 44)

	Time	
Place	Same time	Different time
Same place (Face-to-face meetings)	Facilitation services GDSS	Project management Team support between meetings
Different place (Electronic meetings)	Extensions of telephony - using telephone as a work- station Videoconferencing	Calendaring Computer conferencing

Since Johansen presented this work, there has been considerable commercial development of products supporting people working at different times and/or different places. Software such as Lotus Notes⁷ embodying communications and

⁴ Ventana Corporation, Tucson, Arizona

⁵ Enterprise Solutions, Bellingham, Washington

⁶ Software Aided Meeting Management, University of Minnesota

⁷ IBM

knowledge sharing support is considered a definitive product of the commercial IS/T market called *groupware* (Dancer & Tunbridge, 1995). Johansen (1988) defines groupware (Johnson-Lenz & Johnson-Lenz, 1980) as:

a generic term for specialized computer aids that are designed for the use of collaborative work groups. Typically these groups are small, project-orientated teams that have important tasks and tight deadlines. Groupware can involve software, hardware, services, and/or group process support.(p. 1)

Returning to definitions of GDSS, and the roots of GSS, Vogel and Nunamaker (1990) refer to a National Science Foundation work group as defining GDSS, "as the application of information technology to support the work of groups with a focus on improving group performance and organizational effectiveness".

Poole and DeSanctis (1990) describe GDSS as combining "communication, computer and decision technologies to support the decision-making and related activities of work groups". (p. 173) Furthermore, they state "the fundamental goal of a GDSS is to support collaborative work activities such as idea creation, message exchange, project planning, document preparation, mutual product creation, and joint planning and decision making". (p. 174) They go on to distinguish physical arrangements and levels of communication intervention. Importantly they mention that GDSS technologies create new communication linkages among individuals and alternative ways for undertaking group work.

Jessup and Valacich (1993), writers on GSS, describe GSS as "computer based information systems used to support intellectual collaborative work" (p. 5). They limit the scope for their readership by referring to "the type of work that takes place in a meeting" and focus on the "same time/same place" dimension. This definition, scope and focus is adequate for the purposes of this study and hereafter the term "GSS" will refer to this environment.

There are however two further focussing dimensions to place this study in context and those are the size of the group and the type of task - "the type of work that takes place in a meeting" (Jessup & Valacich, 1993, p. 5). Group size is noted as an important dimension in the group dynamics literature (Forsyth, 1983, p. 9), and also the GSS literature (Dennis et al., 1988), as it affects influence and interdependence behaviour among members. Large groups (more than forty) may exhibit more deindividuating behaviour, whereas very small groups like dyads (two people) have

special properties such as dissolving when one person leaves. Forsyth notes that most groups tend to be small in size ranging from two to seven persons and refers to Simmel's (1902) definition of a *small group* as four to twenty members. Dennis et al. (1988) arbitrarily refer to small as ten members or less. The GSS technology used in this study is designed for small group work, ten or fewer, although the software allows up to twenty participants (Lewis, 1993). The field work involved a group of seven members and thus fits all the above definitions of a small group.

Jessup and Valacich's "type of work that takes place at a meeting" is somewhat vague and requires some further focus for this study. Haynes (1988) points out the differences between *information* meetings and *decision-making* meetings (Table 1.3).

Table 1.3 Key differences in types of meetings (Haynes, 1988, p. 12)

Elements	Information meeting	Decision-making meeting
Number attending	Any number	Preferably not more than 12
Who should attend	Those who need to know	Those responsible and those who can contribute
Communication process	One way from leader to participants with opportunities for questions	Interactive discussion among all attending
Meeting room set-up	Participants facing front of room - classroom style	Participants facing each other - conference style
Most effective style of leadership	Authoritative	Participative
Emphasis should be on	Content	Interaction and problem-solving
Key to success	Planning and preparation of information to be presented	Meeting climate that supports open, free expression

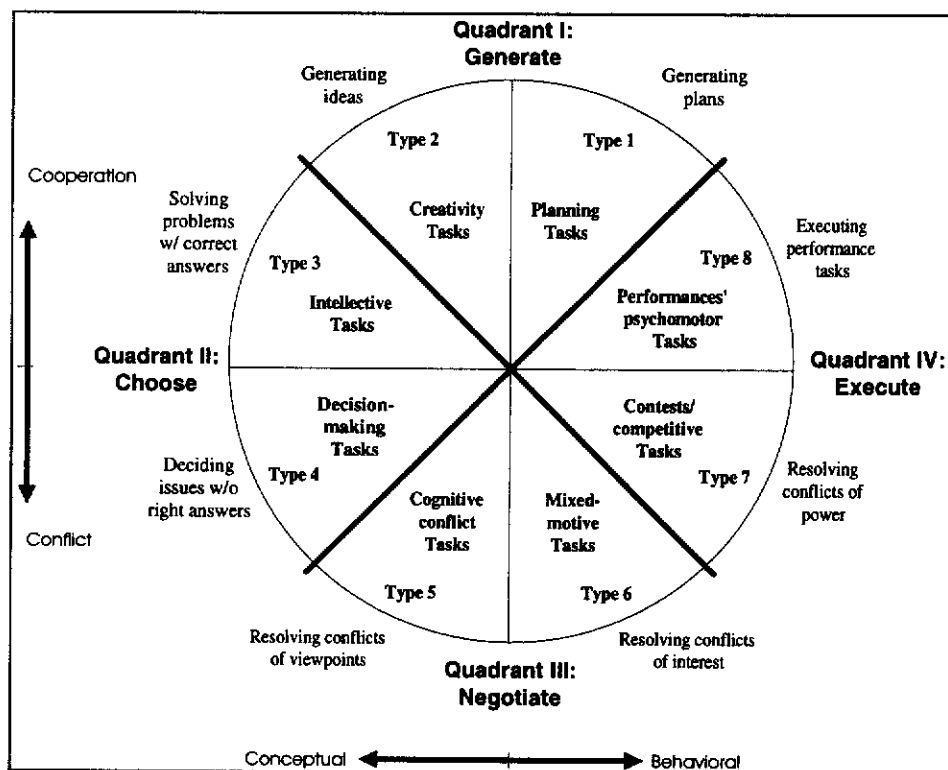
The meeting emphasis in this study is more like *decision making* with a small number of members, who are responsible and can contribute. Furthermore, the emphasis includes an interactive communication process with eye-to-eye contact,

participative leadership, emphasis on interaction and problem solving, and a climate supporting open and free expression.

It is noted that traditional business meetings with an agenda - apologies, minutes of last meeting, agenda items, other business, and minute taking; a chairperson (often the manager) and a minute secretary, are not the focus of this study. Rather the domain of this study, like much of reported GSS research, deals with meetings which are called to deal with an explicit task of relatively larger scope than the items on a business meeting agenda. Such tasks would be solving a major problem, dealing with a substantial issue, or planning for the next few years.

McGrath (1984) provides a categorisation of group tasks that is often referred to in the GSS literature (Figure 1.1).

Figure 1.1 A categorisation of group tasks (McGrath, 1984, p. 61)



As far as the participants in this study were concerned they were involved in a "strategic planning task". Most of McGrath's task types existed in this major task. At various stages the participants were involved in generating plans for action

(planning), generating ideas (creativity), deciding issues without right answers (decision-making), resolving conflicts of viewpoints (cognitive conflict tasks) and resolving conflicts of interest (mixed-motive tasks). In the light of the above, a broad description of the task is *planning*, and for the reader who requires more specificity, then Chapter Five details sub-tasks that made up the planning activity.

1.3.5.2. The GSS in this Study

The components of a GSS designed for same time/same place meetings include:

- people and roles
- software - containing structures for supporting processes
- hardware - that runs the software, and provides input and display facilities
- the room environment
- process - the interaction of people, roles and technology

These aspects are described below, particularly with regard to the context of this study.

As mentioned earlier, there are three major roles filled by people during GSS activity- participants, facilitator, and chauffeur. Participants are the problem or task stakeholders, the group of people upon whose behalf the GSS activity has been proposed.

Their contributions create a plan, evaluate alternatives or solve the problem presented. Their ownership creates the commitment necessary for post-meeting success. (MeetingWorks, 1995, p. 23)

Whilst participants contribute content concerning the task, the facilitator and the chauffeur roles are behaviours directed at helping the group of participants with the *process* of solving their problem, or completing their task. The roles of facilitator and chauffeur are described in greater detail in the next section.

The computer based information system used in this study consisted of the software MeetingWorks running on a PC network in a meeting room environment. The

modus operandi for the GSS consisted of a small group of participants facilitated by a two person facilitation team (see Figure 1.2).

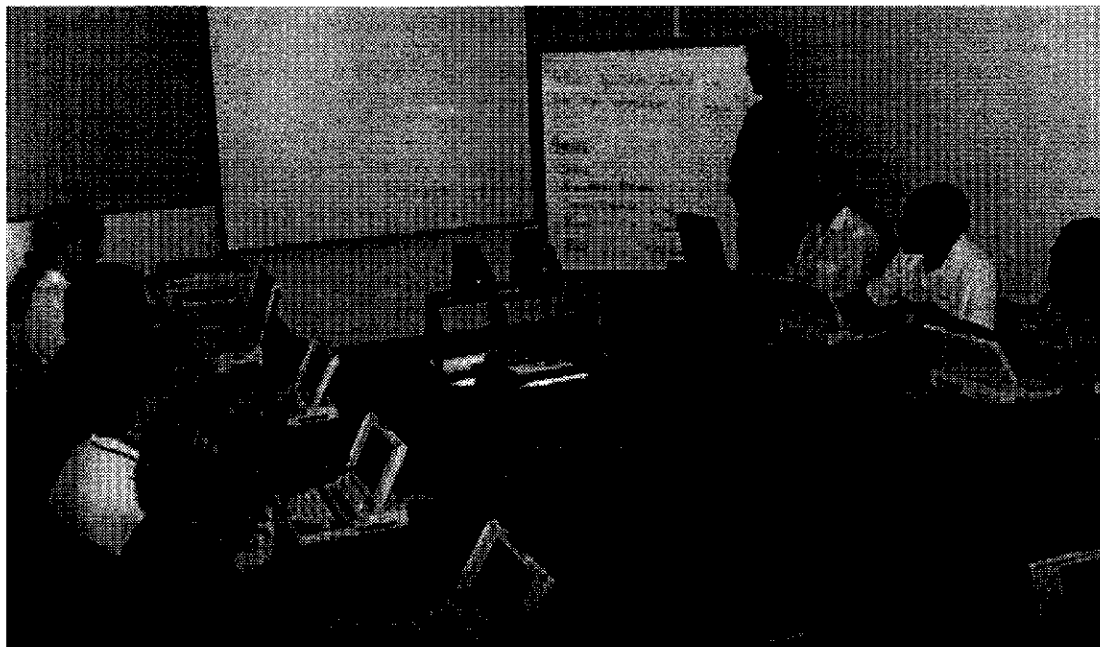


Figure 1.2 The GSS facility at Curtin University, Perth, Western Australia

The external, active, flexible process facilitation provided by such a team, differs from those GSS studies relying only on the technology, or the group, or both for facilitation (Zigurs, DeSanctis & Billingsley, 1991; Chudoba, 1993; DeSanctis, Poole, Dickson & Jackson, 1993). The meeting room environment for MeetingWorks corresponds to the Decision Room approach of the DeSanctis and Gallupe (1985) framework where the meetings are of limited duration and the participants are in close proximity. Examples of GSS sessions using MeetingWorks have been described in Atkinson and Marshall (1990) (see also Finlay and Marples (1991) and Lewis (1993)).⁸

MeetingWorks is designed to "support small groups engaged in face-to-face decision making meetings" (Lewis & Keleman, 1991, p. 2.2). The software of this GSS is divided into modules (see Table 1.4) that support generic group information activities such as idea generation (e.g. brainstorming); idea discussion and organisation (e.g. outlining); idea evaluation (e.g. rating, ranking, voting, cross-impact, and multi-criteria decision making); and agenda execution and reporting.

⁸ MeetingWorks was originally called MeetingWare.

Table 1.4 MeetingWorks software description⁹

Activity	Module name	Characteristics
Idea generation	Brainstorm	Participants can enter an unlimited number of ideas (60 characters per line) which are sent to a public screen. The screen can be switched on or off to promote dependent or independent thought.
	List	Like brainstorm, however participants are limited to three ideas.
	Comment	Allows participants to add further ideas around specific headings or topics.
Idea discussion and organisation	Discuss	A chauffeur ¹⁰ module, projected onto the public screen, that treats one idea at a time thus promoting focus among the group. A timer promotes time management through allowing specification of time per idea, showing total elapsed time, and total time remaining.
	Organise	A chauffeur module that is essentially an outliner that allows construction of a hierarchy of ideas.
	List Edit	A chauffeur module that allows editing of a simple flat list.
Idea evaluation	Rate	Allows participants to enter a judgment between 0 and 10 for items on a list. The judgments for each item are independent (e.g. ties are allowed). Distribution graphs and summary statistic (averages) may be produced.
	Rank	Allows participants to order items (i.e. 1,2,..., n) on a scale. Summaries may be produced.
	Vote	Allows participants to cast a vote for one item in a larger list. Summaries may be produced.
	Cross Impact	Allows participants to compare two lists and indicate the strength of a defined relationship (e.g. obstructs, supports) on a -5 to +5 scale. Public summary statistics and graphs may be produced. Summaries can be filtered to highlight patterns.

⁹ Based on the DOS version used in the study. The more recent Windows version (MeetingWorks for Windows) has similar broad functionality with some changes. *Generate* replaces brainstorm and list. *Evaluate* incorporates rate, rank, vote, allocating 100 points and choosing a subset from a list. *Multiple criteria analysis* includes criteria weighting and weighted factors.

¹⁰ The chauffeur is the technical facilitator role.

Table 1.4 ctd. MeetingWorks software description

Activity	Module name	Characteristics
Idea Evaluation ctd.	Criteria Weighting	Allows participants to allocate 100 points across a set of items. Can be used alone or more often with weighted factors undertake multi-criteria analysis.
	Weighted factors	Allows participants to rate a list of alternatives (factors) on each of several criteria. Many summary statistics and graphs may be produced, and sensitivity analysis is possible.
Session management	Scriptwriter	Allows the chauffeur to construct, integrate, and later execute a sequence of modules (e.g. brainstorm, discuss/organise and rate).
Reporting	Reportwriter	Keeps the history of the GSS meeting and allows the chauffeur to edit to produce a customised report.
Integration	Viewer	Allows other applications (e.g. a spreadsheet) to be viewed and manipulated.

Typical sessions, involving a task, say strategic planning, and facilitated by a facilitator and chauffeur would likely use a variety of modules. The group may silently and privately brainstorm for twenty minutes, discuss and organise individual ideas in public for an hour, then rate the discussed ideas according to some scale of importance. Sometimes a more sophisticated evaluation module such as multi-criteria decision making may be warranted. The process will move between private work and public work. Along the way, reports will be generated, and may be publicly displayed and hard copy produced.

The technical aspects of the GSS Facility room (Figure 1.2) at Curtin University, in which the sessions took place, included a U shaped configuration of eleven networked PCs. These were, nine participant stations (Toshiba¹¹ T1000SE notebooks), one network server station (a Toshiba T3100SX laptop), and a chauffeur's station (a Toshiba 4100SX laptop). The network hardware consisted of an Ethernet¹² local area network over which a LANtastic Network Operating System

¹¹ Toshiba is a trade mark of Toshiba America Inc

¹² Ethernet is a registered trade mark of Xerox Corporation

¹³ was used. Two overhead projectors with LCD plates connected to the server and chauffeur stations were used to project computer screens onto the front wall for public display. A Toshiba laser printer was connected adjacent to the chauffeur's station, for producing hard copy reports during the session.

1.3.5.3. Facilitation

Bostrom, Anson and Clawson (1993) describe facilitation as

a set of functions or activities carried out before, during, and after a meeting to help the group achieve its own outcomes. The essential characteristic of facilitation is to help make an outcome easier to achieve (p. 147)

The mode of facilitative support is an important dimension of GSS. Social and technical facilitative support can be provided in a great variety of ways and undoubtedly has great influence on the GSS experience. Nunamaker, Dennis, and Vogel (1990-91) reported in a review of field studies that "the perceptions of participants suggest that use of a facilitator can affect meeting outcomes at least as much as any other component of the EMS [GSS] environment" (p. 124). Dickson, Partridge, and Robinson (1993) describe different modes of facilitative support. They refer to the facilitator (social facilitator) and the chauffeur (technical facilitator). They make a distinction between whether these roles are performed by the group (problem stakeholders) themselves or by persons outside of the stakeholder group.

Bostrom, Anson and Clawson (1993, p. 159) note that the *external facilitator* (from outside the group) is currently the dominant form of commercial GSS facilitation. Furthermore, facilitation roles are often split between a *process* facilitator and a *technical* facilitator (chauffeur). This was the situation in this study.

Clawson and Bostrom (1993) have described sixteen key facilitator behaviours based on a study of fifty practising GSS facilitators (see Table 1.5).

¹³ LANtastic is a trademark of Artisoft

Table 1.5 Key GSS facilitator behaviours (Clawson & Bostrom, 1993, p. 5)

Promotes ownership and encourages group responsibility	Actively builds rapport and relationships
Demonstrates self-awareness and self-expression	Presents information to the group
Appropriately selects and prepares technology	Demonstrates flexibility
Listens to, clarifies, and integrates information	Plans and designs the meeting process
Develops and asks the "right" questions	Manages conflict and negative emotions constructively
Keeps group focused on outcome/task	Understands technology and its capabilities
Creates comfort with and promotes understanding of the technology and technology outputs	Encourages/supports multiple perspectives
Creates and reinforces an open, positive and participative environment	Directs and manages the meetings

Whilst the behaviours in Table 1.5, would be practised by facilitators at Curtin, the description that follows highlights the activities, pre-session, during a session, and post session. It is based largely on the experiences, observation and training of the author in relation to actual facilitation that takes place at the Curtin University facility. This is felt to be most relevant to the understanding of the context of the study.

The two person team, a facilitator and a chauffeur, acted as consultants and were thus operating outside of the stakeholder group. The consultants have found that a two person team was justified. It is difficult to attend to social processes and technical ones at the same time. Furthermore, with substantial tasks, requiring significant process design and management, groups are more likely to require technical and social facilitation expertise from outside rather than relying on their own skills and the technology alone. Indeed, Dennis, Nunamaker and Vogel (1991) reported that all field studies they reviewed found a process facilitator to be necessary. The strategic planning task in this field work also necessitated facilitator expertise in strategic planning processes, expertise that is not captured in GSS technology, nor was it part of the group's expertise.

The facilitator (seen standing in Figure 1.2) is responsible for the pre-session planning, the session process, and the post session activities. Pre-session, the facilitator would meet with the client sponsor to discuss the problem situation, objectives, the suitability of GSS, the appropriate group composition, the scheduling of sessions, and the contractual arrangements. At a later stage, in consort with the chauffeur, the facilitator would design a process with appropriate software modules to support the objectives agreed with the client. At a session, the facilitator would attend to the introduction of people, the agenda, roles, and ground rules. In particular, the facilitator may seek to encourage broad participation, keep the group focussed on the task, and surface or deal with *hidden agendas* (Tyson, 1989, p. 50-51). Hidden agendas may be goals of individuals or sub-groups that the facilitator feels should be made explicit in order to help the larger group with the task, and relationships between individuals, the group, the task and the broader organisational setting. The facilitator manages the verbal interaction within the group. He or she may help clarify meaning among the group by asking questions. The facilitator may help with the interpretation of reports from the GSS, and may also respond to suggestions from the group as to process changes. In summary, the facilitator undertakes a variety of tasks concerned with designing and managing the meeting process, which in part depend on the needs of the situation and in part the knowledge, skill and motivations of the individual facilitator.

The "chauffeur" is the name given to the other major role in the facilitation team. The chauffeur can be seen seated furthest away on the left in Figure 1.2. The chauffeur's role emphasis is on the technology, compared to the facilitator's emphasis on the people. The chauffeur manages the technology before, during, and after the session. This will involve ensuring that all software and hardware is functioning correctly and that the software modules for a particular session are ready for operation. At a session, the chauffeur may introduce participants to particular modules, deal with any queries concerning operation, and attend to any software or hardware problems. The chauffeur will also act as "scribe" by typing and organising ideas when the process requires.

Depending on the particular facilitation team, the facilitator and chauffeur roles may be shared, again according to the knowledge, skills and motivations of the two individuals concerned, and the requirements of the situation.

1.3.5.4. Features of GSS Technology

The software and hardware of GSS provide numerous features that are not otherwise available or accessible at traditional meetings. The major features are discussed under the headings of:

- structure
- anonymity
- parallel communication
- recording of information

GSS technology brings *structures* to meetings primarily through the network implementation of software modules, such as those described in Table 1.4 "MeetingWorks software description". Some are structures that have been used without computer technology, for example, Nominal Group Technique (Delbecq, Van de Ven & Gustafson, 1975), and brainstorming (Osborn, 1957). Some structures such as Multi-Criteria Decision Making (MCDM)¹⁴, although having been around since the 60s, are only operationalised in a computer-based environment, given the amount of calculation and graphic displays needed for them to be useful. The computer-based environment also makes extensions to existing structured techniques possible. For example computer-based voting and rating procedures allow graphic display of distributions, calculation of summary statistics, and rapid sorting. By making a number of these structures available via computer, synergies of structure can be realised. For example a brainstorm list of criteria can be generated via a brainstorm module, discussed and organised in another module, and then used in a multi-criteria decision making module to evaluate a set of alternatives. Outcomes along the way are recorded and can be used in later stages, or in other processes.

Nunamaker, Dennis, Valacich, Vogel and George (1993), drawing on Dennis (1991), refers to *task structure* and *process structure* as features of GSS. Task structure refers to modelling methods¹⁵ including multi-criteria decision making (MCDM¹⁶),

¹⁴ MCDM or multi-criteria decision making refers to a broad set of methods that break choice situations into parts, composed of options/alternatives/objectives and criteria/attributes, and use measurement scales to allow participants to rate alternatives on each criteria. Mathematical aggregation, often a simple weighted average, is used to look at the choice overall. (Keeney & Raiffa, 1976)

¹⁵ There are a wide variety of modelling methods. Relatively few are currently part of a single GSS software. Exceptions would be MCDM in MeetingWorks and stakeholder analysis in GroupSystems. Support for cognitive mapping is provided by COPE (Eden, 1988), and there exists a group interface, however, COPE does not provide all the features of say MeetingWorks or

cognitive mapping (Eden, 1988), and stakeholder analysis (Mason & Mitroff, 1981), each of which provide some structures by which to work through an "under specified" task, such as strategic planning. The GSS provides structures within which a specific problem can be addressed. Dennis (1991) claims:

task structure may improve group performance by reducing losses due to incomplete task analysis or increasing process gains due to synergy, encouraging more information to be shared, promoting more objective evaluation or catching errors (by highlighting information) (p. 53)

Dennis describes *process structure* as referring to ways in which the group process or meeting process are structured. Dennis provides the example of following an agenda, a series of steps, as a global process structure. The five stage strategic planning process based used in this study could be considered a global process structure.¹⁷ At a more specific level, Nominal Group Technique (NGT) provides a series of steps; firstly, private idea generation, secondly, public discussion of ideas, thirdly, private voting on ideas, and finally, public discussion of votes (Delbecq, Van de Ven & Gustafson, 1975). NGT can be implemented within MeetingWorks via a sequence of three modules, Brainstorm, Discuss/Organise and Rate (see Table 1.4).

The distinction between Dennis' task structure and process structure blurs if one considers that the structuring of the task involves aspects of sequencing, and determination of who does what, and when. Indeed, the research model upon which Dennis (1991) based his discussion (Dennis et al., 1993, p. 595 figure 3), places process as influenced by characteristics of group, task, context and the GSS technology.

GroupSystems. Additionally, much of the logic of application is in the hands of the facilitator. Within this study a MCDM software module was applied by the facilitator within a structured approach to strategic planning designed to fit MCDM methodology. Thus task structure resides both in the GSS software and the knowledge of the facilitator, much the same way as a tradesman applies a set of tools in a logical way to build part of a house. As GSS software gains a broader set of tools and/or is integrated with other software, and in addition is applied by skilled facilitators, then a broader range of task structures can be provided for problem solving.

¹⁶ MCDM methods have been developed for individual decision making (Keeney & Raiffa, 1976), and adapted and extended to group decision making (Hwang & Lin, 1987; Edwards, 1971; 1977). Hong (1992) describes the conceptual development of MCDM which is partly implemented in GroupSystems as the module "alternative evaluation". An MCDM tool has long been a feature of MeetingWorks (Lewis, 1993).

¹⁷ Ansoff (1965; 1990) and Andrews (1991) provide the background for classical strategic planning. Within this study a formal process was undertaken. The sequence involved the client group considering the present, the future, and then strategies to take their organisation from the present to the future.

Anonymity is another feature of GSS. Anonymity can provide individuals greater freedom to express views in situations where identification would lead to perceived negative consequences for the person or the idea. This aspect is referred to as *evaluation apprehension* (Forsyth, 1983, p. 256). Anonymity can also free a person from the constraint of conforming to other members in a group, called *conformance pressure* (Nunamaker, Dennis, Valacich, Vogel & George, 1993). The freedoms enabled by anonymity are thought to result in more diverse and critical ideas. At the same time, lack of identification can lead to extreme, even personal, criticism. Indeed, anonymity is described as an antecedent condition of *deindividuation* (Forsyth, 1983, p. 443) (see also Table 1.1). Additionally, the person who proposed a "good" idea can go unrewarded. Anonymity of written communication could also lead to free riding as there is no awareness of what each person has contributed.

Experimental GSS research supports the "more critical" aspect of anonymous groups (Jessup, Connolly & Galegher, 1990; Valacich, Jessup, Dennis & Nunamaker, 1992).¹⁸ The "richer" aspect is supported in studies by Connolly, Jessup and Valacich (1990) (higher quality), and Jessup, Connolly and Galegher (1990) (more comments, and embellishment of others' comments). Nunamaker et al. (1993) note that GSS field studies have reported the importance of anonymity, particularly where there were power and status differences in the group.

Whilst GSS software provides anonymity for idea generation and idea evaluation, it is important to recognise that verbal interaction within GSS meetings is not anonymous. Thus for meetings, such as within this study, where anonymous brainstorming is followed with a significant amount of identified verbal discussion, the potential impact of anonymity is less than a completely "electronic" meeting. Additionally, whilst the software offers the possibility of anonymity, it is up to the facilitator and the participants as to whether this is adhered to as an accepted behaviour. Within the GSS meetings of this study, the facilitator stated in the first session that anonymity was a ground rule of GSS for brainstorming and voting. Generally participants adhered to this norm, although on one occasion a participant identified themselves when the manager questioned an outlying result in a rate session.

Parallel communication refers to the capability with the GSS technology for participants to "speak at the same time" that is enter ideas and rating simultaneously.

¹⁸ This research has focussed on idea generation tasks rather than idea evaluation tasks, for example, voting. Anonymous voting, for example, the "secret ballot", is associated with the election of political representatives in democratic political systems, and is a familiar procedure for use at meetings, particularly when freedom to cast a vote without fear, is considered important.

The feature is provided through each person having a personal work station from which to enter information. Parallel communication can allow more ideas to be entered in a given time period. As the input is written rather than spoken, it also means that minds are not anchored or focussed on one idea because it was spoken out aloud. Lewis (1993) describes the benefit of parallel communication as *efficiency* and backs this up with field studies (Keleman, Garcia, & Lewis, 1989; Lewis & Keleman, 1990). Nunamaker et al. (1993) claim that "parallel communication promotes broader input ... and reduces the chance that a few people dominate the meeting" (p. 145).

Recording of information is possible in GSS software, via the computer allowing an electronic log of the session. Reports generated by the system can also be printed. Dennis (1991) refers to this support, as support for group or organizational *memory*. Whilst the electronic log facility is provided in MeetingWorks, the more useful feature is report generation. Lewis (1993) notes that traditional meetings, where a minute secretary operates, can suffer from filtering of information, a single viewpoint, and delays in production. The GSS system can reduce these problems by storing reports based on group input, and providing immediate print-outs. It is worthy to note however, that the memory artefacts as electronic log, or hard copy reports, also represent a considerable filtering of the meeting environment and thus may not capture the entire spirit of the meeting.

Lewis (1993) lists numerous benefits of GSS technology, including: (1) anonymity, (2) focussed discussions, (3) parallel input, (4) report generation, (5) text manipulation, (6) list structuring, (7) preference analysis, (8) rapid computations, (9) rapid sorting, (10) shared public display, and (11) a personal work station. Some of these have been discussed above. Items like (8) and (9) represent the capacity of computers to do things quickly (efficiency). Items (5), (6), and (7) represents some of the efficiencies of handling text and numbers through the computer rather than with whiteboard, flip-charts, and calculator.¹⁹

Focussed discussions are the opposite to the commonly cited meeting problem of getting "off track" or people "going off on tangents" (Haynes, 1988; Mosvick & Nelson, 1987). Lewis observes that focused discussions are brought about through

¹⁹ The capacity to do many small things more efficiently, can through synergy, result in qualitative (effectiveness) changes. For example, consider an electronic brainstorm, followed by public discussion of criteria and alternatives, and then preference analysis using a multi-criteria decision making tool. Whilst each step could be done without computer it is unlikely that it would be feasible without significant short-cuts being made.

the combination of the software presenting ideas for discussion, one at a time, and the shared public display. The public display, possibly combined with anonymity, "appears to make it easier for members to give up their personal ownership of an idea, and seems to result in a sense of group ownership of these ideas" (Lewis, 1993).

As Lewis notes, preference analysis - the capacity to analyse participants' evaluations, is an important feature of GSS. Multi-criteria analysis is an extension to simple rating, ranking, and voting techniques, representing a more sophisticated GSS, and is thus discussed in the following section.

1.3.5.5. Multi -Criteria Decision Making (MCDM) and GSS

Multi-criteria decision making or MCDM is a disciplinary field of Management Science/Decision Science/Operations Research. It deals with "rational" decision making strategies. The rationality is expressed as the assumption that individuals attempt to maximise expected satisfaction or utility in decision making situations (Keeney & Raiffa, 1976).

The multiple criteria aspect recognises that most decision situations involve trade-offs amongst conflicting objectives. There are many techniques associated with MCDM, and furthermore, considerable variability in the actual implementation to "real world" problem solving. Simple Multi-Attribute Rating Technique (SMART) (Edwards, 1971; 1977), and the Analytic Hierarchy Process (AHP) (Saaty, 1980; 1994) are two MCDM techniques.

The computer revolution has seen various software for MCDM become available and applied to "real world" decision making. For example, software that enables SMART, includes VISA (VISA for Windows, 1995) and HIVIEW (Barclay, unpub.). Expert Choice (Expert Choice for Windows, 1995) is a software that facilitates AHP. MCDM involves numerically intensive processing and is enhanced by graphic displays and sensitivity analysis. Thus it is only through computer software that MCDM techniques become useful.

Whilst MCDM techniques can be applied to individual decision making, it is in the group decision making context, that the techniques are potentially more useful. There are many ways of obtaining a group decision, including consensus, majority

vote, minority vote, decision by leader after group discussion, decision by leader alone, decision by expert, and averaging of individual judgments (Tyson, 1989, pp. 126-127).

The GSS technologies, MeetingWorks and GroupSystems V, provide MCDM modules that enable averaging of individual judgments entered via the PC network of individual work stations. Other GSS approaches, such as Decision Conferencing (Phillips, 1989), without individual work station support, use MCDM software such as HIVIEW running on a single PC. Here, the averaging option is not necessarily feasible, and hence group decision is via other methods including consensus, and decision by leaders.

The GSS technologies that provide decision modelling features are referred to by DeSanctis and Gallupe (1987, p. 593-594) as level two GSS. Level one GSS are described as systems that provide communication features including private work stations, electronic messaging, public screens, anonymous input of ideas and votes, and compilation.

Level two GSS are an important area to study in that they structure decision making processes in non-traditional ways. Additionally, their features may be used as a selling point for application. Traditional facilitators are generally unfamiliar with MCDM tools, and users even more so. There is also considerable variation in the GSS software for providing MCDM. For example, MeetingWorks used in this study provides a more sophisticated and complete MCDM module than GroupSystems V.

The greater decision structuring associated with level two GSS represents a stronger form of intervention in group decision making situations than level one GSS. (DeSanctis and Gallupe, 1987, p. 595). Thus it is important to understand the effects of such systems. In this study, the perspective of the participants is the focus, however the understanding gained is then used to make recommendations to facilitators and designers.

The use of a level two GSS in this study (described in more detail in Chapter 5 "Level two GSS MCDM Implementation"), represents a unique contribution to building understanding of systems supporting decision structuring. These systems have been less frequently researched than the level one GSS, those that provide basic GSS support for communication.

1.3.5.6. Commercial GSS Activity

Commercial GSS activity represents the "real world" use of GSS, by organisations paying for GSS use at vendor sites or installing GSS systems of their own. Whilst commercial GSS use is by no means comparable with the diffusion of technologies such as PCs or client/server computing, the current activity represents much greater activity than a decade ago, and illustrates that GSS is now a commercial activity rather than solely a research and development activity.

With decreasing technology costs, and organisational trends toward teamwork, planning, and Total Quality Management (TQM), combined with widespread IS infrastructure, commercial diffusion of GSS has the potential to be rapid. Thus there will be an increasing need to understand GSS activity in organisational settings. This highlights the need for research to at least keep pace with commercial activity, and at best inform GSS use and development.

Commercial GSS activity has been reported in the popular press and professional magazines. An edition of *The Wall Street Journal* (Bulkeley, 1992), reported on computerized meetings in the US. IBM was reported as having built forty five computerized meeting rooms for its own use. An estimated two hundred computerized rooms were reported as having been installed around the US.

An article in *Computerworld*, an Australian magazine for IS professionals, described a GSS, and its application at a three day meeting for 40 executives from several countries, who were discussing client/server computing. (Isaacson, 1994)

PC Magazine reported an evaluation of contemporary "electronic meeting support software" including GroupSystems V, and mention of MeetingWorks for Windows (Kranz & Sessa, 1994). Windows Sources reviewed Windows²⁰ based meeting software including MeetingWorks for Windows, and GroupSystems for Windows (Vaughan-Nichols, 1994).

A number of GSS facilities that have been installed in corporations have been reported in the research literature, for example, The Boeing Company (Post, 1992) and IBM (Nunamaker, Vogel, Heminger, Martz & Grohowski, 1989). GroupSystems has been reported as being installed in twelve corporations in the US including IBM,

²⁰ Windows is a registered trademark of Microsoft Corporation

Dupont, BellSouth and Greyhound Financial Corporation. SAMM is reported as having being installed in the petroleum giant Texaco, and has been used by the IRS. (Wagner, Wynne & Mennecke, 1993, p. 14, 16)

Within Australia, commercial use of same time/same place GSS is not as widespread but is increasing in diffusion. In the late 1980s, a facility (running GroupSystems) was provided by the Australian Institute of Management, in Perth, following interaction with the University of Arizona. The "GSS Facility" (MeetingWorks) and the "PADD" (Decision Conferencing) at Curtin Business School, Curtin University, Perth, represented some of the early commercial activities in Australia. These were established in the early 1990s, following influences from, Lewis of Western Washington University, and Phillips from The London School of Economics and Political Science. Clients have included Australia Post, CSA (Civil Service Association), Mellville City Council, and the Potato Seed Industry. More recently the Stratcomm (strategic communications facility) has begun operation. The ADFA (Australian Defence Force Academy), located in Canberra, established links with Curtin and subsequently provides support to users in the armed forces. GroupWare Australia on the east coast markets Ventana Corporation's, GroupSystems within Australia and provides various group support activities. There are several small consulting firms operating on the east coast.

1.3.5.7. Diffusion of the GSS: Current MeetingWorks Sites

The GSS software, MeetingWorks, although not as widely diffused as GroupSystems V is currently installed and used in a number of countries including the US, Australia, Germany and Uganda. The installations include Universities and commercial consulting organisations.

The current MeetingWorks installations include:

- Bucknell University
- Curtin University of Technology
- Drexel University
- Enterprise Solutions
- MeetingWorks Associates
- M&I Consultants
- University of Meunster
- New York University
- Uganda Electricity Board
- St. Joseph's University
- University of Calgary
- University of Georgia

More rapid diffusion of MeetingWorks is likely, given that in 1994 it was rewritten for the Windows operating system and is being marketed and sold on a commercial basis through Enterprise Solutions. It has also been reviewed in the popular press (Vaughan-Nichols, 1994) and commercial application, reported upon in the research literature (Hitchcock, Lewis & Keleman, 1994) .

1.3.5.8. GSS Technologies Compared and Contrasted

There are currently more than a dozen GSS software reported (Wagner, Wynne and Mennecke, 1993; Watson, 1992) Of these, a subset are intended for the same time, same place applications that are the focus of this study. Within this subset, three important GSS softwares are MeetingWorks, GroupSystems V, and SAMM.

MeetingWorks is considered important because of its design for the roles of participant, technical facilitator, and process facilitator. Furthermore, it provides

considerable functionality including modules for multi-criteria decision making, and modules for designing the meeting structure. MeetingWorks also has a long history of development from research origins in the early 1980s to current commercial sale.

GroupSystems V also has considerable functionality, a long research and development tradition, and is arguably the most dominant GSS of this type commercially. SAMM is considered important because of its design philosophy, of providing GSS participants with access to functions reserved for facilitators in the other software designs, and the considerable reporting of its use in the GSS research literature.

Given the prominence of these software in research and commercial GSS activity, it is useful to inform the reader of similarities and differences so that readers are sensitised to the possibilities, or otherwise, of transferral of findings across technology contexts. However, it is not the focus of this dissertation to compare GSS technologies as they relate to participant perceptions. This may be the focus of future studies.

In general each of the three softwares are provided on the basis of an individual with a personal work station (IBM compatible PC), connected to a LAN. The functionality of the software is broadly similar. All systems provide facility in the form of software modules for idea generation, discussion and organisation of ideas, and evaluation of ideas. The modular form allows flexible choice of module sequences. All allow input in text, or numeric form. All take individual numeric values, aggregate, summarise and then allow public display of results. Other common features include anonymity of input, parallel input, and recording.

A major difference in design between SAMM and the other two softwares exists. SAMM is "user-controlled; teams can operate SAMM on their own, without a specially trained technician." and "members have complete access to all SAMM facilities throughout their meeting" (DeSanctis et al., 1993, p. 12). In contrast, MeetingWorks is specifically designed with both a chauffeur and a facilitator in mind. The chauffeur has access to software functions that the participants do not have. (Lewis & Keleman, 1991) GroupSystems V is also designed with a facilitation role in mind although the reference manual describes a single combined role known as "session leader". (GroupSystems V, 1990-92, p. slg-7) However, note is made that when groups are large, then a chauffeur role may be appropriate. (GroupSystems V, 1990-92, p. slg-24)

A reasonably important distinction between MeetingWorks and GroupSystems V is the former's more sophisticated multi-criteria decision making tool. This is described in more detail in Chapter 5 "Level 2 GSS MCDM Implementation".

To gain some feel for the purposes, goals, or objectives of the various GSS technologies it is worthwhile to examine descriptions taken from the computer manuals of GroupSystems V and MeetingWorks.

GroupSystems V is described as aiming to:

improve group productivity by supporting collaborative processes [including] generation of ideas, organization of ideas, alternative evaluation and consensus building, analysis/decision making/action plans, and information management/record keeping (GroupSystems V, 1990-92, p. slg-2-3).

In particular the software offers "anonymity" to aid with "a richer collection of ideas", "simultaneous and parallel processing" to aid with "accelerat[ing] what can be accomplished", and "full and immediate record keeping" to diminish reliance on "subjective interpretation". (GroupSystems V, 1990-92, p. slg-3) These features are described as contributing to "help meetings become more efficient and productive". (GroupSystems V, 1990-92, p. slg-4)

In relating the software to effective meetings, the following statement is made:

Components of an effective meeting include a common focus on content, a common focus on the current process, protection from personal attack, an open and balanced flow of conversation, and clearly defined roles and responsibilities. GroupSystems V clearly supports all of these components. (GroupSystems V, 1990-92, p. slg-7)

It is not explicitly stated how the software supports the components of effective meetings, however the following interpretations could be made. Common focus on content may be supported by the public screen and each participant being able to view the same information on their work station. Protection from personal attack is likely supported by the anonymity feature. A balanced flow of "conversation" is dependent on how conversation is defined. The software supports written communication and given that each person has a work station, and can undertake

simultaneous and parallel input, with anonymity, there is a greater likelihood that verbally "shy" participants would input to a GSS session, as compared to a traditional meeting. An "open" flow of conversation could be facilitated by the anonymity feature, allowing greater freedom of expression. Beyond written conversation and its impact on verbal conversation, management of verbal conversation is likely determined by the facilitator rather than the software. "Clearly defined roles and responsibilities" are partly defined by the software differentiating between participant role and facilitator role, but are also defined by the group and the facilitation team, at the meeting. The software manual describes roles and responsibilities and hence acts as a possible source of influence.

MeetingWorks is described (MeetingWorks, p. 21) as software that:

- provides electronic support for face-to-face meetings
- allows teams and groups to improve decision making
- capitalises on both the strengths of ... individual members and on group synergy
- offers protection for minority viewpoints through anonymous contributions
- assures equal participation by all members by allowing a single vote per participant regardless of position
- [reduces] the time required to address the meeting's goals²¹

MeetingWorks meetings (p. 21) are described as:

- facilitated, not self run
- suitable for relatively small groups
- have a short duration (although several hours to a few days is mentioned)
- planned in advance

The first point emphasises a key difference between MeetingWorks and descriptions of SAMM, and places MeetingWorks firmly in the domain of externally facilitated meetings.

²¹ Time reduction is a contentious issue. For example GSS meetings were noted by study participants as being longer than their normal staff meetings. However, the tasks being addressed were substantially different. Furthermore, usage of the tools, by encouraging thoroughness, say considering one idea at a time, may take more time than a superficial discussion. Brainstorming large numbers of ideas could also result in longer meeting times.

The meeting process (MeetingWorks, p. 21) is described as "minimising lack of focus, lack of planning, lack of participation and lack of ownership" and "verbal interaction is encouraged and focused". The latter aspect can be seen as an emphasis within the philosophy of MeetingWorks, although GroupSystems V purports to "supplement rather than replace traditional methods of discussion and personal contact" (GroupSystems V, p. slg-10) and stresses a balance between verbal and electronic communication (GroupSystems V, p. slg-28).

The role of pre-planning for MeetingWorks applications is stressed as "mandatory" and includes determination of the meeting purpose and the end products, undertaken in meetings between facilitator and, either the client sponsor, or a small group from the client organisation.²² As part of the planning process the determination of the *script* is undertaken. This is the design of the meeting process as a series of steps that specifies the software modules to be used, and the associated files that form links between the steps. The software module is called "scriptwriter" and is referred to in Table 1.4. The advantage of the script is that it can be constructed prior to the meeting. At the meeting, the chauffeur can run the script, and the software will proceed through each step of the script, requiring only the consent of the chauffeur to continue processing. The chauffeur can, however, change the script or run a step as the meeting demands. Once a script has been constructed, it can be used for other meetings that warrant similar process structure. Over time, a facilitation team can accumulate a database of scripts from which they may choose a specific script to support a generic task, such as strategic planning or Total Quality Management. Time which would otherwise be spent in script construction is available for other activities. Whilst GroupSystems V offers a "meeting manager" module, it stops short of providing the facility for automatic execution of pre-defined steps.

The MeetingWorks manual describes major roles in GSS meetings, the three being the facilitator, the chauffeur and the participants.²³ In this respect, the manual is

²² The use of a single individual, committee or the whole client group in the pre-meeting planning is a matter of judgment on the facilitator's behalf. The usual practice at Curtin has been a single individual (the client sponsor) and that was the case in this study. Factors to consider for a consultant facilitator include politics, practicalities, and effectiveness. Within this study, the client sponsor as manager had the power to commit the group to the session, and also the authority to negotiate the contract. Furthermore, the manager approached the Curtin consultants. Given all these considerations, the manager was the obvious point of contact between the client group and the consultants.

²³ GroupSystems V refers to the roles *session leader*, *group leader* and *participants*. The session leader is viewed as "facilitating meeting processes" (p. slg-7) and "directing use of the software" (p. slg-8). This then covers both the *facilitator* and *chauffeur* role although large groups and novice session leaders are seen as requiring two persons (p. slg-24). The group leader is analogous to

quite explicit in describing the process facilitator, and the technical facilitator, as two roles. While the manual notes that the roles may be filled by one person, as mentioned earlier, the consulting experience at the Curtin GSS Facility has been that the roles warrant two people in order to provide an effective service to clients undertaking important tasks, such as strategic planning.

1.3.5.9. Issues of Implementation of GSS

GSS technology can be applied in a variety of ways. The verbal aspect of GSS sessions deserves prominent mention. Research descriptions do not generally emphasize verbal aspects of GSS. Indeed, use of terms like "electronic meetings", without qualification, leave questions about the role of verbal communication.

DeSanctis and Gallupe (1987, p. 593) discuss level one GSS as "removing common communication barriers", and "facilitating information exchange" through the provision of electronic communication. This can be considered an additional communication channel, rather than excluding verbal exchange. Design choices in a meeting are to use verbal communication only, use written electronic communication only, or some balance of the two. The context, particularly with relation to group size, proximity of participants, and type of task, constrains the choice. In large group situations (say greater than ten participants), the personal opportunity for face-to-face verbal communication on a one-to-all basis becomes limited. The pressure on "air time" means that large group meetings, either have few speakers, or have to limit the time per speaker. To allow more people to communicate, the alternative of written simultaneous input becomes more attractive, and this attractiveness increases with group size. The communication channels don't get blocked so easily. Hence "electronic meetings" are attractive.²⁴

However, in the small group situation (less than ten participants), the verbal communication opportunity is not so constrained, and there is greater latitude for designing a balance of written and verbal communication. In the GSS sessions described in this study, verbal discussion is an important feature of the process. A

the *client sponsor* the participant who has authority or responsibility for the participant group and is contracting with the GSS facilitator.

²⁴ Whilst an electronic communication channel allows the sender to input data, the receipt of that data by others can still be problematic. For example, the electronic brainstorm module of GroupSystems V, uses a random, not an exhaustive, circulation of messages amongst participants. Additionally, the ease of input, if not managed, can result in a large pool of ideas for which there is insufficient time for all participants to gain a shared understanding of meaning.

characterisation of a session structure might be, silent written brainstorm (15 minutes), public verbal discussion and organisation of brainstorm ideas (1-2 hours), private written evaluation of organised ideas (15 minutes), and then public verbal discussion of evaluations (15 minutes). Thus on a rough quantitative basis, public verbal discussion may be two thirds of a GSS session, and private written input may be one third of a three hour session. This balance between written and verbal communication may well vary in GSS applications taking place in different parts of the world with varying norms for process design. Indeed, Dennis (1991) describes a typical GSS session with a balance in favour of written rather than verbal participation.

In real life application of GSS to face-to-face small group situations, it is difficult to imagine the people engaged on tasks of any complexity or importance, not taking advantage of substantial verbal communication, particularly at critical junctures in processes involving explanations, conflict, and decision points. Verbal communication is perhaps the most obvious human interaction at meetings and is taken-for-granted (in some form) by participants. If not catered for in a GSS session, then it would proceed before, after, and in the breaks, as a natural part of the group processes.

Implementations, such as in this study, design for verbal discussion in ways that are possibly radically different from "real world" large group GSS implementations, and also experimental small group implementations. The broader issue of varying implementation of GSS, and lack of description of implementation, is a problem in past GSS research and is likely a factor in so-called conflicting findings. Descriptions that simply state which GSS tools were used, without describing *how they were used*, (including the role of verbal interaction described above) make transferability of findings difficult, and contentious.

This completes the background to the GSS activity, attention is now turned to another major construct of the research question, that of perception.

1.3.6. Perception and Perceptions

Thomas and Thomas (1928) stated "If [people] define situations as real, they are real in their consequences". GSS technology is designed to "improve group work". In a fundamental sense the "success" of GSS is contingent on what people (users) think about it, rather than what designers or researchers think about it. Individuals' perceptions are what ultimately determine how a technology is used, whether a technology is deemed useful, and whether individuals are prepared to "buy in" or adopt the technology. Simply put, a GSS does not exist without its users. Thus it makes sense that researchers should be concerned about user perceptions of GSS.

Empirical studies of GSS (see Dennis & Gallupe, 1993 for review) often study a range of user perceptions (e.g. perceived quality of outcome, satisfaction with task and process) in addition to measures of time taken and artefacts produced (e.g. quantity of ideas). Sometimes perceptions, say "perceived quality of the decision", are used as a surrogate when there is no "correct decision", or are used as an additional measure to judgments of "experts". (Zigurs, 1993)

The treatment of perceptions as *measurable things* (Zigurs, 1993), is consistent with a world view that reality is considered "out there", and is stable and simple enough for a researcher to undertake measurement using say, Likert scale instruments. It is this researcher's contention that perception is about construction of reality within peoples' minds and that this is sufficiently dynamic and complex that measurement is inappropriate.²⁵ Whilst this argument is developed more carefully in Chapter Four, some time is devoted here to the nature of perception.

Whilst perception is a major concept in psychology, the treatment of perception within the GSS literature is relatively unsophisticated perhaps reflecting many IS researchers' backgrounds in engineering and technology.

Perception is a "process by which people select, organize and interpret sensory stimulation into a meaningful picture of the world" (Markin, 1974). Reber (1985) states:

²⁵ The term *measurement* is used here to refer broadly to the use of numbers to quantify phenomena. More specifically, measurement is used to refer to the common practice in GSS research of using Likert scales, treating these as interval scales, and employing mathematical averaging and standard deviations to describe and make interpretations about phenomena.

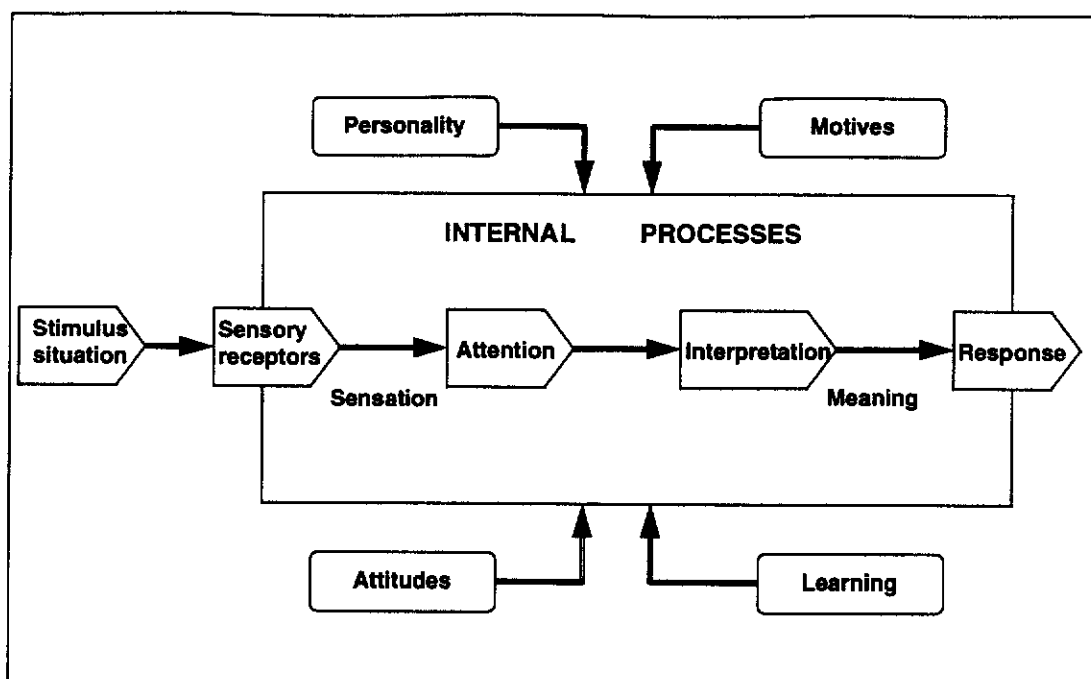
what is perceived is not uniquely determined by physical stimulation but, rather is an organized complex dependent upon a host of other factors (p. 427)

This is partly why GSS researchers cannot solely pay attention to the physical artefacts of GSS, such as the number of ideas generated, or the time taken to complete a task.²⁶ Furthermore, the assumption that what the researcher "sees" happening in a session is the same as what any other individual "sees" is called into question. Considerable psychological research has shown that the same physical stimuli can produce different interpretations dependent on factors such as experience, motivation, physiological state, culture and gender (Coren & Ward, 1984). Thus research methods that limit interaction between participants and researcher may also limit the researchers' ability to understand the participant viewpoint.

Loudon and Della Bitta (1979, p. 320) provide a model (Figure 1.3) of the perceptual process, indicating the effects of personality, motivation, attitude and learning on the processes of attention and interpretation, which are finally manifest in an individual's response to a stimulus situation.

²⁶ Even chronological time has been shown to be perceived rather than directly experienced, perception varying with body temperature (Coren & Ward, 1984, p. 378). On a personal basis "time drags" when we are doing uninteresting tasks or "time flies" when we are "having fun". Thus measurement of chronological time in GSS sessions may not reflect participants' perceptions of time.

Figure 1.3 The perceptual process (Loudon & Della Bitta, 1979, p. 320)



Attention, sometimes referred to as selective attention, refers to a filtering process by which the mind selects amongst the vastness of stimuli, both that to which it will pay attention, and by negation that to which it will not pay attention. The concept is captured by the "cocktail party" syndrome where you are confronted with many conversations, movements and things to look at, yet you selectively attend to a subset of the activity. (Loudon & Della Bitta, 1979; Coren and Ward, 1984)

Interpretation, refers to the process by which selected stimuli are given meaning. Thus even though two minds might attend to the same stimuli, their interpretation or meanings attached to those stimuli could be quite different. Thus the act of bringing a bottle of wine to a dinner party would be interpreted somewhat differently by a Muslim host and the atheist guest. (Loudon and Della Bitta, 1979)

The extent to which the "outside world" or the mind shapes perception is debateable, however, two people can more readily agree that a rock weighs one kilogram as opposed to whether or not the GSS technology improved the meeting.²⁷ The latter is more ambiguous and more equivocal, dependent on characteristics of the mind such as expectations, experiences and interests, and the social context.

²⁷ Coren and Ward (1984, p. 10) refer to theories of *direct* perception and *constructive* perception. The former positing, for example, that the light that hits the retina is enough to determine what one "sees", the latter positing, the view adopted in this study, that perception is about the mind forming a construct by organising many sources into a coherent whole.

In this study, perception is viewed much more than stimulation of the senses (treated as *sensation* in psychology (Coren & Ward, 1984)). Furthermore, it is assumed that each individual brings with him or her, unique characteristics of personality, motivation, attitude and learning. These characteristics will help determine a unique, individualistic response to stimulus situations that occur in the course of GSS meetings. Thus each individual will construct their own meaning and interpretation, that is, their own reality corresponding to the GSS activity.

Learning influences affect an individual's ability to categorize stimuli.²⁸ This can occur via affecting the individual's ability to identify stimulus attributes and thus either discriminate or see things as being similar. It is likely that learning influences will play a significant role in the evolution of individuals' perceptions of the GSS phenomenon over the five sessions proposed for this study. Particularly given that the group to be studied will not have experienced GSS meetings prior to the study. (Loudon & Della Bitta, 1979)

Personality also influences the perceptual process. There are various theories of personality including Freudian theory, trait theory and self-concept theory (Williams, 1981). The study of personality is beyond the scope of this study, however, it is recognised as an influence on perceptions. For example, extroverts and introverts have been shown to have different perceptual sensitivity. (Coren & Ward, 1984) In the study some group members appeared to be more extroverted and others more introverted.

Motivational states of individuals' could affect their perceptions of the GSS activity. This is a phenomenon often cited as a distinguishing characteristic between experimental groups and field groups, the latter having a greater motivation associated with a task in which they have a stake (Galliers & Land, 1988). An indicator of the high level of motivation associated with this study was the willingness of the individuals to participate in fifteen hours of sessions most of which was in their after work time. Different functional roles within the organisation, likely produced different motivational states. The manager, who was the client sponsor, was highly motivated to have the sessions "work" because if they

²⁸ Language is also thought to influence the ability to categorize stimuli. Eskimos have many words to describe different types of snow. Our ability to discern different types of snow is in part limited by our vocabulary. The same effect could be evident with novice users of GSS who may not have the vocabulary related to processes like brainstorm, discuss/organise and multi-criteria decision making, instead relying on a simpler vocabulary to categorise and describe experiences.

didn't it would reflect badly on him. His employees would be motivated with concerns about how the planning they were to undertake would affect their work organisation. Each of these motivational differences could influence individual perceptions of the GSS phenomenon.

In addition to motives, *attitudes* are thought to influence the perceptual process. Attitudes, are according to Milton, Entekin and Stening, (1984, p. 27) "regularities of an individual's feelings, thoughts, and predisposition to act toward some aspect of his or her environment". Glenn Walters (1978, p. 261) notes that "such words as beliefs, feelings, opinions, inclinations, and biases are often used to depict attitudes." There are a number of attitudes that could play a role in determining individual perceptions of the GSS phenomenon in this study. Participants may have particular attitudes toward technology, meetings, consultants or strategic planning tasks that will in part determine how they view the GSS phenomenon. It was intended that pre-GSS interviews held with participants would help make these predispositions explicit, and act as a baseline for comparison over the course of the GSS sessions.

Operational Definition Of Perceptions In This Study

Perceptions are defined within this study as the outcomes (responses in Loudon and Della Bitta's (1979) model) of the process of selection, organization and interpretation of stimuli. The stimuli of interest in this study are those occurring during a series of GSS sessions.

This definition of perceptions is congruent with a dictionary definition of perception as "the result or product of perceiving , as distinguished from the act of perceiving" also known as a "percept" (Delbridge, 1985, p. 1264).

Additionally, it is consistent with a psychology dictionary definition of *perception*;

Collectively those processes that give coherence and unity to sensory input. This is the most general sense of the term and covers the entire sequence of events from the presentation of a physical stimulus to the phenomenological experiencing of it. Included here are physical, physiological, neurological, sensory, cognitive and affective components. (Reber, 1985, p. 527)

and *percept*;

That which is perceived. Note that percept should not be confused with either the physical object...or the energy that impinges on a receptor...In the final analysis, the percept is phenomenological or experiential; it is the outcome of the process of perception (Reber, 1985, p. 527)

Given that the English dictionary definition includes the equating of percept with perception, it is reasonable to use perception to refer to outcomes rather than process.

In this study, the "outcomes" or perceptions are primarily inferred from analysis of written transcripts of individual interviews that were held following the individuals' experience of a GSS session. The rationale for using interviews as the primary data source is pursued in Chapter Four "Research Design".

In the next section, the longitudinal aspect to the research problem is justified.

1.3.7. A Series of GSS Supported Meetings: Change over Time

Dennis and Gallupe (1993), after reviewing empirical GSS research (experiments and field studies), note the need for research over time in the following:

There is also the question of time and user experience with GSS technology. Many studies have examined groups' first use of GSS technology. Yet several studies suggest that group performance and reactions [perceptions] to [of] GSS technology change as groups gain experience with its use (Chidambaram et al. 1991; Dennis, 1991; Zigurs et al., 1989). More research is needed to better understand how performance and user reactions [perceptions] change from initial use as novices to subsequent uses as average and experienced users. (p. 77)

An understanding of the change in client perceptions with continued use is critical, if it is assumed that the future of GSS lies in continued use by groups rather than "one off" usage. It is likely that some benefits and pitfalls of GSS will only be realised over time. Additionally many "real world" group activities take place over time including planning (the focus of this study), quality circles, business process

improvement groups and project groups. Thus longitudinal study to understand changes over time is desirable.

Zigurs (1993, p. 121) has recommended longitudinal GSS research as one of six recommendations for future GSS research.

To study longitudinally is the fourth recommendation. The vast majority of GSS research has been conducted in single - meeting contexts.

Apart from the implicit notion that longitudinal research may reveal things that are unknown from single occasion use, Zigurs notes that group development takes place over time and that GSS groups require time to adapt to the technology. The nature of the adaptation to the technology is largely unknown.²⁹ This concern is similar to Dennis and Gallupe's interest in changes experienced as GSS novices become more experienced users.

Whilst the calls for longitudinal research are strong, the paucity of such studies is noted by Pervan (1994, p. 228). In a literature review of 203 papers about GSS, Pervan found only four papers with a longitudinal dimension. These were Garcia, Lewis and Keleman (1989), Miranda and Bostrom (1993), Zigurs, DeSanctis and Billingsley (1991), and Chidambaram, Bostrom and Wynne (1990-91). Both Pervan (1994) and Zigurs (1993), noted that the substantial investment of resources to collect longitudinal data was likely responsible for the paucity. Thus the longitudinal aspect of this study is a strength in that it adds to a relatively neglected area of GSS research. Many groups work over time, and GSS is designed to support the work of groups, hence we need to understand how groups work with GSS technology over time.

Individual participants of a client group

The phrase "individual participants of a client group", refers to individuals who are part of a group, that is part of an organisation that has agreed, by way of some written or verbal undertaking, to deal with a problem or issue of mutual concern to the group. The participants' method of dealing with the problem of mutual concern,

²⁹ Group development recognises that most groups change, and receives considerable treatment in the social-psychology literature with varying models including the successive stage model (Tuckman, 1965; Tuckman & Jensen, 1977) - "forming, storming, norming, performing and termination" (Forsyth, 1983).

involves attending the Curtin GSS Facility in a face-to-face meeting facilitated by a professional facilitation team.

Participants can be distinguished from the facilitation team consisting of facilitator and chauffeur. The term "participants" will be used to represent "individual participants of client groups".

The group of participants can be considered a *client* of the consulting facilitation team, as the group has hired the facilitation team to progress their group activity. The group comes from a single organisation whereas the facilitation team are *external* consultants.

1.3.8. Relevance and Rigour

Every researcher must concern themselves with the questions of relevance and rigour, particularly in a PhD dissertation. Lyytinen, in Turner's panel (Turner, 1991), on relevance versus rigour in information systems research, deals with these concepts.

Lyytinen's three tactics for the pursuit of relevance are; (a) stakeholder identification, (b) the type of knowledge pursued, and (c) the matching of (a) and (b).

The stakeholders in this study include; (i) the academic community, for example, researchers concerned with GSS, and researchers concerned with methodology, (ii) professionals, such as facilitators and software/hardware developers, (iii) the management within organisations that may wish to use GSS, and (iv) the general public, for example, as potential participants, benefactors or otherwise, of GSS.

The type of knowledge pursued in this dissertation is primarily understanding and criticism rather than prediction, explanation and control. However, understanding is viewed as a vehicle or foundation for future studies that may focus on prediction, explanation and control.

Lyytinen's primary question for rigour is: "Is the context of justification clear in terms of general methodological rigor and clarity and strength of the argument developed in the thesis?" (p. 734). The answer to this question will be elaborated in the course of the thesis.

1.3.9. Disciplinary Domains of GSS

This section is to acquaint the reader with the broad and necessarily complex domain of this study. The simple definitions of disciplinary areas are to be recognised as such, they are merely provided to show connections.

The GSS domain is a very rich interplay of disciplinary areas. The core aspect is that it concerns people using information technology. This qualifies GSS as part of the study of information systems. Furthermore, it is about groups using information technology. Groups are in turn made up of individuals. The study of groups, including group dynamics, falls into the domain of social-psychology an area which can be viewed as between sociology - the study of society, and psychology - the study of the individual mind.

Groups using GSS generally come from organisations, thus disciplines such as management and organisational behaviour are relevant. The use of a facilitator and chauffeur (technical facilitator) introduces aspects of group facilitation and leadership. The technology involves software engineering and hardware design. Thus computer science and computer engineering are relevant. Models used within the software incorporate aspects of management science such as multi-criteria decision making (MCDM).

The recognition that GSS is a system or whole within larger systems or wholes, means that on the one hand it is difficult to study because of its complexity and on the other hand it can be counter productive to dissect it into parts that lose their meaning when separated from the larger context. It is the intention in this study, to look at the GSS phenomenon in a real setting with all its inherent complexity, from the perspective of one set of important stakeholders, the participants. By doing so it is hoped that inferences can be drawn that will help in the design and application of GSS meetings.

1.4. Summary

The chapter began with the research question, and then elaborated on both the background, and the focus of the study. The importance of meetings and group work was described along with some of the problems. GSS was introduced as a combination of software, hardware, people, and processes, designed to support group work. Whilst GSS technology can be used to support meetings at different times and places, the domain of this study is the same time/same place, or face-to-face meeting environment. Additionally, the use of external, active, flexible, process facilitation, distinguishes this study from those that rely only on the participant group or the technology to provide facilitation. The longitudinal nature of the research was justified by the reality that groups work on tasks over time, yet most GSS research has been restricted to single occasion usage and thus does not address the possibility of changes with continued use.

The importance of the participant viewpoint was described, and the concept of perception as an individually constructed reality was introduced.

In the next chapter a focussed literature review is conducted around the topics of perceptions and longitudinal GSS research.

Chapter 2. Literature Review

2.1. Introduction

The literature review presented in this chapter is primarily focussed on those GSS studies which have involved a longitudinal aspect, and thus could be deemed relevant to the research question of how perceptions change over time. Prior to the focussed review, some more general aspects are covered, including GSS research activity, mixed findings, and theory in GSS.

2.2. GSS Research Activity

Reported research activity in GSS is growing. Evidence for this exists in applications at research institutions, reporting in the research literature and research conferences.

Cervený, Sanders and Wang (1991) indicated the growth in articles on GSS from one in 1984 to 11 in 1989 in an ABI/INFORM search. Pervan and Atkinson (1992) in a preliminary literature analysis, discovered 94 articles on GSS. Pervan (1994) included 203 papers on GSS in a literature analysis from 1981-1993 with a median year of 1991. Additionally, the Hawaii International Conference on System Sciences and the International Conference on Decision Support Systems have featured GSS research over the past decade. Prominent journals for the publication of GSS research have been *Decision Support Systems*, *Journal of Management Information Systems*, *Information and Management*, and *MIS Quarterly* (Pervan, 1994).

About 40 GSS research facilities have been reported. These are all in Universities. Most are in the US but facilities exist in Canada, Mexico, England, Germany, Singapore, Australia and New Zealand. (Wagner, Wynne & Mennecke, 1993, p. 33) Several US Universities have a strong tradition of GSS research. The University of Arizona, through proponents such as Nunamaker and Vogel, has been active in publishing GSS research, and developing GSS software such as GroupSystems since the mid 1980s. The University of Minnesota, through people such as DeSanctis, Gallupe and Poole have also played an important role. Research grants and contracts in the US have involved several million dollars, and have included public and private companies such as IBM, AT&T and NCR. (Dennis & Gallupe, 1993)

Whilst research activity has grown there has been great variety in the findings amongst studies.

2.2.1. Mixed findings amongst GSS studies

Several authors have noted mixed findings in GSS research, variously described as *cloudy* (Dennis & Gallupe, 1993), *contradictory or equivocal* (DeSanctis, Poole, Dickson & Jackson, 1993) *inconsistent* (Dennis & Gallupe, 1993; Poole & DeSanctis, 1990), *conflicting* (Pinsonneault & Kraemer, 1989), and *not comparable* (Dennis, 1991). Dennis and Gallupe (1993) reviewed empirical research, summarising that findings from field studies more consistently show "positive" results of GSS, whereas student subject studies are more varied, and include "negative" results of GSS.

Mixed findings between student subject studies and field studies may be explained by differences such as:

- Student groups have limited history and future as opposed to organization groups which have significant history and future (Mennecke, Hoffer & Wynne, 1992; Dennis, Easton, Easton, George & Nunamaker, 1990).
- Student subjects undertake tasks for which their motivation is different compared to organisational groups undertaking tasks in their work environment (e.g. study requirements versus work requirements).¹
- Tasks in student subject studies are less complex than tasks in the field (Dennis & Gallupe, 1993).
- Time spent by students on tasks may be only one or two hours whereas longer periods of time are spent by subjects in the field (Dennis & Gallupe, 1993).
- Group sizes in student subject studies are more often around five members to increase statistical power (through maximising the

¹ Furthermore, Copeland, Francia and Strawser (1973) undertook experimental research that showed significant differences in attitudes between students and business persons, and concluded that this raised doubts as to the effectiveness of using students as surrogates for business persons.

number of groups for a "minimum" group size) whereas field groups are generally larger (Dennis & Gallupe, 1993).

- Student subject studies usually have no facilitation, or have low experience facilitators undertaking scripted procedures, whereas field studies involve facilitators who are experienced, apply flexible facilitation, and strive to make the GSS experience successful² (Dennis & Gallupe, 1993; Bostrom, Anson & Clawson, 1993).
- Researchers in student subject studies usually assume and/or seek control over aspects of the phenomenon whereas researchers in field studies do not.

Mixed findings amongst controlled student subject studies may be explained by differences in aspects such as:

- Commitment of researcher to particular theories, models and methods
- Concepts being studied
- Research designs used
- Tasks used
- Instruments (questionnaires) used
- Factors (as in factor analysis) used as aggregations of items
- Data used (quantitative measurement only or quantitative supplemented by observation and interview data)
- Unit of analysis (individual or group)
- Comparisons made (amongst GSS, between GSS and "manual", between GSS, manual and baseline)
- GSS technology application (different software, different software modules, different usage).

Mixed findings amongst field studies may be explained by most of the above but additional differences include:

- Role of researcher, for example, as participant, say facilitator, as opposed to observer only
- Facilitation source (user driven or externally facilitated)
- Facilitator roles (process facilitator and/or technical facilitator)
- Facilitator style

² Bostrom, Anson and Clawson (1993) report evidence (Anson & Heminger, 1991) that "flexibly applied process facilitation by external facilitators can supplement and/or enhance GSS effectiveness" (p. 156).

- Task
- Task structure and process design provided via facilitation
- Group characteristics (size - both physical and logical, composition, history, computer experience etcetera)
- Length and frequency of intervention.

The recognition of the variety of findings has prompted researchers to suggest numerous future actions including:

- Attempt to get replication of results in student subject studies by reducing as many as possible of the differences above, for example, through sharing measurement instruments and re-validating borrowed instruments (Zigurs, 1993).
- Encourage researchers to describe the context of their research so that others can appreciate the similarities and differences. Dennis (1991) describes this thus:

Research must report sufficient contextual, group, task, and [GSS] environment information to enable readers to judge the limitations of the conclusions, and researchers should endeavor to clearly bound the scope to which their results apply. (p. 40)

- Identify as many variables of GSS activity as possible, and form contingency theories that explain the different findings through different values of the variables. (Pervan, 1994)
- Formulate theory to explain the different findings. (Poole & DeSanctis, 1990)
- Borrow theory from other disciplines to explain the different findings. (Rao & Jarvenpaa, 1991)

The terms "conflicting results" and "inconsistent findings" seem to reflect an expectation among some GSS researchers that findings should be consistent, stable and unambiguous. This may be a reflection of the positivist or natural science approach that seeks general, universal laws through experimental research. An

argument could be mounted that there is a great deal of variety in GSS phenomena because the activity of humans is so varied, group settings are dynamic and complex, and the methods of inquiry are not stable because of their interpretation and manipulation by the humans involved in the study. Discussion of world views, in particular the positivist and interpretivist paradigms, is the subject of Chapter Three.

The researcher in this study expects that as a research community we may have to accept that groups and their use of technology are somewhat idiosyncratic and that our attempts to understand them will be a product of their natural variety, our beliefs about the phenomenon and our beliefs about research. If GSS are conceptualised as social or socio-technical systems rather than technical systems then our knowledge may be modest, bounded and specific, rather than broad and general.

In order to provide understanding, explanation, prediction, control or just to guide future research some GSS researchers have tried to develop theory or use theory from other disciplines. The following sections review relevant work.

2.3. Theory in GSS

In common with IS research generally, there are often pleas in the GSS literature for theory to guide research and application (Rao & Jarvenpaa, 1991). Whilst the pleas for theory are common in GSS there is little debate about the characteristics or nature of theory.

A dictionary definition of theory is "a coherent group of general propositions used as principles of explanation for a class of phenomena" (Delbridge, 1985, p. 1760). Glaser and Strauss (1967, pp. 237-250) posit that theory should fit the data, work to provide explanations and predictions, be at a reasonable level of generality, and provide understanding and control:

- *fit*: "the theory should fit the data" and "be relevant to the area it purports to explain" (p. 261).

When the theory does not fit well, the consequences are a typical forcing and distorting of data to fit the categories of the deduced applications, and the neglecting of relevant data that seemingly do not

fit or cannot be forced into the pre-existing [sociological] categories.
(p. 238)

- *work*: The theory should provide relevant predictions, explanations and applications. Relevance is directed toward the actors who are directly concerned with the phenomena. In the case of the GSS activity, theory could be developed for the facilitator as a practising professional.
- *generality*: The concepts or categories of the theory need to be pitched at a level that allows theory application to be general enough to transcend a variety of situations yet not so abstract that the person applying the theory loses the connection to a particular reality they are faced with. Part of ensuring this requires a diverse variety of situations to be studied.
- *control*: The theory should include concepts that allow the actors to control or manage their situations otherwise it is unlikely to be applied.
- *understanding*: The theory should make sense and be understandable to people working in the area, for example, IS professionals, users, and designers so they can use the theory themselves. The theory should act as a bridge, for example, enable IS professionals to relate to everyday realities and enable users to master and manage the situation through the theory.

Perhaps the only framework in GSS that provides some of the characteristics above, is that of Adaptive Structuration Theory (AST) (Poole & DeSanctis, 1989), although its ability to provide predictions and control has not been tested. Additionally, whilst researchers may understand AST, it is debateable whether it is understandable to lay persons such as facilitators and designers. With regard to fit, it may be that AST formulated for GSS has not been induced from a large enough range of GSS applications to "fit the data". DeSanctis and Poole's GSS experience has been mainly with the user driven philosophy of SAMM and hence their theory may not account for facilitator led GSS. The following section reviews AST.

2.3.1. Adaptive Structuration Theory (AST)

AST is a concept initially formulated by Poole and DeSanctis to help with the understanding of the use of technology in general, and GSS specifically. (Poole &

DeSanctis, 1989; 1990; Poole, Siebold & McPhee, 1985). Part of its intellectual origins are with Giddens' Theory of Structuration (Giddens, 1979; 1984). Giddens' theory has been described (Haralambos & Holborn, 1991) as a theory in sociology that sits somewhere between the Functionalist school and the Interpretive school. It provides some emphasis on structures affecting individuals but balanced with the freedom of individuals to act in ways that either reproduce or change structures.

Poole and DeSanctis' AST specifically includes technology. Thus their focus is more specific than Giddens' sociological theory. *Structure* is a central concept. Whereas Giddens refers more to general social structures, Poole and DeSanctis refer specifically to social structures such as group hierarchies and also to latent structures present in technology, for example, the software. Thus in applications like GSS, Poole and DeSanctis posit that the individuals using the technology have the ability to apply the technology structures as well as the social structures.

They further posit that these applications vary with context. Of particular interest to Poole and DeSanctis are the nature of the applications, which they term *appropriations*. They define appropriations which are "true" to the intended goals or *spirit* of GSS, as being *faithful* appropriations and those that are not, as *ironic* appropriations. *Comfort* with the technology and *respect* for the technology are posited as attitudes of participants that help determine the nature or mode of the appropriations. The level of consensus among participants as to how the appropriation should take place, is posited as another factor in the mode of appropriation. *Stable* appropriations are defined as being appropriations that are likely to promote the intended effects of a technology. Stable appropriations are assumed to occur when there is a high level of consensus among participants on how appropriation should take place and "positive" group attitudes toward the technology in terms of respect and comfort. A stable appropriation is described as the way designers would intend systems to be used. Figure 2.1 provides an overview of AST.

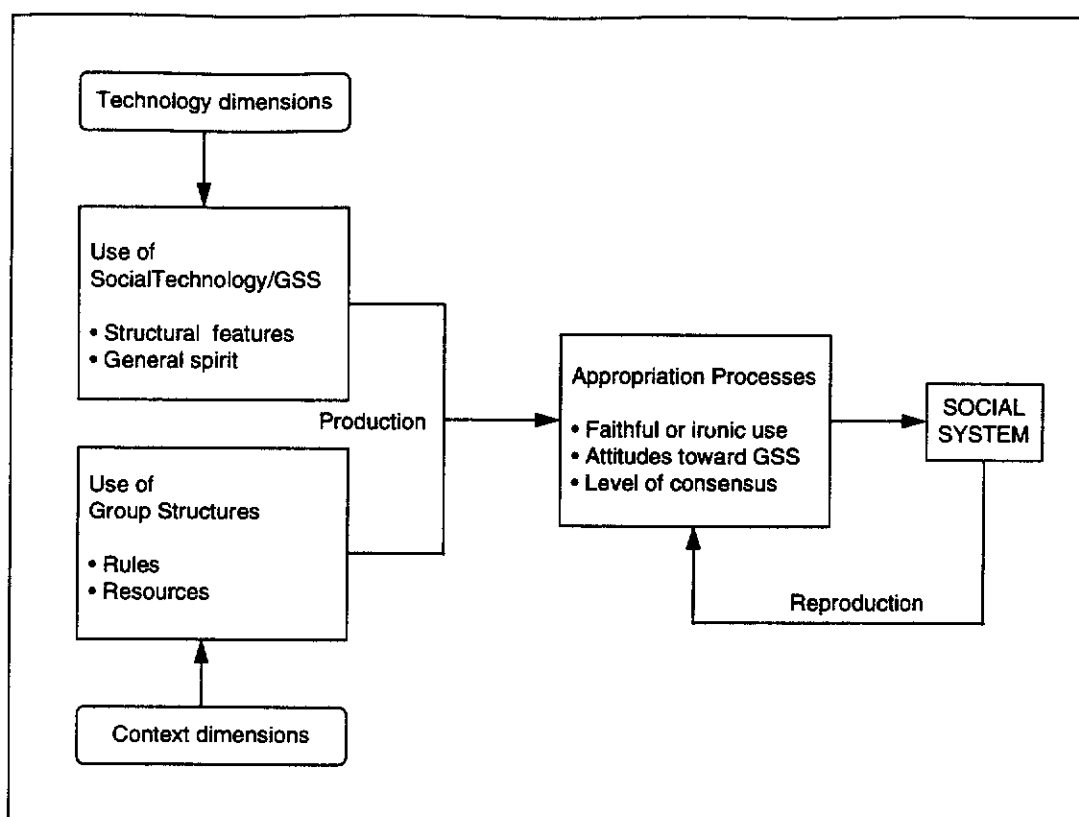


Figure 2.1 An overview of the adaptive structuration process (Poole & DeSanctis, 1990, p. 182)

Based on their concepts, Poole and DeSanctis (1990) make a number of predictions. These predictions include the effects of level one and two GSS technologies, participant knowledge of the spirit of GSS, behaviour of the group leaders, and agreement on values. The authors make a general prediction relating to prediction of outcomes such as quality, consensus, process and decision satisfaction. That is "*The more stable the group's appropriation process, the more predictable the outcomes of [GSS] use will be.*" (p. 189) Whilst providing anecdotal evidence for support of their theory they point out that research is still in its early days.

Several other researchers (e.g. Chudoba (1993), and Gopal, Bostrom and Chin, (1993)) have employed an AST perspective in their research. There has not been any published criticism of AST. The author raises the following issues with regard to AST concepts.

Any set of concepts that is not ground in extensive and intensive study of the phenomenon that it attempts to describe runs the risk of missing important aspects of the phenomenon and highlighting misleading aspects. This is a theme of Glaser and

Strauss' Grounded Theory Method (Glaser & Strauss, 1967). Theory that is not developed in conjunction with analysis of data may not have desirable properties. These properties could include fit to the data, provision of relevant and understandable predictions or control of situations, and parsimony in the sense of explanation of a wide variety of situations but with a minimum of concepts.

Thus AST may suffer from these deficiencies until grounded research provides confirmation or otherwise of its basic concepts. Bearing this in mind, and in the absence of such grounded research, the author criticises some of the existing concepts of AST.

The primacy, nature and role of *structure* is debateable. There are many possible structures existing in the GSS environment. These structures could exist in the minds of the participants and the members of the facilitation team, as well as in the GSS technology. The technology structures may be subservient to the structures the people bring to the context. Awareness of technology structures among the people in a GSS context is likely to be variable and exposure dependent. Without empirical research it is impossible to determine if structure exists in the minds of the actors involved, what is/is not structure, how is it interpreted by the actors involved, and what role it plays in interaction processes. Poole and DeSanctis (1992) note the potential of structures external to the GSS technology but their emphasis is on the structuring potential of the technology.

Defining the *spirit* of the GSS is problematic, because it is subjective, that is, it belongs to people not technology, thus varies according to point of view. Furthermore, it is debateable as to whether it is explicit and communicated. Designers may or may not explicitly describe the "goals and attitudes" that the technology aims to promote. Facilitators may have their own view of what goals and attitudes they wish to promote in a session. These goals and attitudes may or may not be shared with the designer. In fact the designer and the facilitator are quite different roles and likely have quite different motivations. There is also a question about the notion of a single designer. Most software results from a number of designers and workers who program the design. The participants then represent another set of points of view. They may or may not be aware of the goals and attitudes of the designers and facilitators.

Poole and DeSanctis (1992) address the concern about spirit and point of view. They claim that the researcher is best placed to make an interpretation of the spirit. To do

so they claim that the researcher must consider multiple sources of evidence including the designer, the software, training manuals, and large numbers of user interpretations. They recognise that there are possibilities of convergence or divergence in these multiple sources. These states are defined respectively as *coherent* or *incoherent* spirit. Although the researcher may be *best placed* to make an interpretation of the spirit it is surely the users of the technology whose interpretations are most valid to *their* appropriation of the technology, thus it would seem that a researcher should primarily be concerned with the *users'* viewpoints.

If AST is a useful concept for GSS research, then there are contexts, such as in this study, that would likely have a significant effect on the interaction process. This study has a context where the facilitator is the primary meeting designer. The contractual arrangement between the client sponsor and the facilitation team sets the roles for the facilitation team and participants. Essentially the client expects the facilitation team to guide them through a planning process involving sessions using a GSS facility. The facilitation team is expected to be expert in the use of the GSS technology and the application of appropriate processes.

This context is likely significantly different to contexts described for the GSS technology SAMM with which DeSanctis and Poole deal most often. According to Wagner, Wynne and Mennecke (1993), "SAMM was designed to give each group member full and equal access to all aspects of the software, rather than giving special control to a group leader, facilitator, or technician." (p. 16). If this design intention is implemented then the role of the facilitation team in SAMM GSS sessions would be significantly less powerful than in the study described in this dissertation.

As with any set of concepts, AST suffers from the possibility of reification. Abstract concepts such as "spirit" or "structure" may come to be regarded as concrete things or at least existing in GSS sessions, rather than conveniences for understanding GSS sessions. Irrespective of the above criticisms, AST has assumed some prominence in GSS research. In addition to AST, there are several other frameworks that researchers have developed or adopted.

2.3.2. Other perspectives

Pervan (1994) reviewed ten major GSS frameworks. By *framework*, he referred to classifications that primarily serve as guides for researchers in the selection of research topics and variables, and could be considered as "pre theory". A dictionary definition of framework is "a structure composed of parts fitted and united together" (Delbridge, 1985). In contrast to theory, "a coherent group of general propositions used as principles of explanation for a class of phenomena" (Delbridge, 1985, p. 1760), a framework does not require a "coherent set of propositions" nor does it have to "explain a set of phenomena". Pervan notes that the foci of the frameworks have varied:

The early frameworks sought only to classify (DeSanctis & Gallupe, 1985; 1987; Jelassi & Beauclair, 1989), some suggested theories for GSS and groups (Holmes [sic should be Hiltz] et al., 1991; Rao & Jarvenpaa, 1991), some focused on GSS design (Nour & Yen, 1992), some examined specific group development outcomes (Mennecke et al., 1992), and some attempted to both classify GSS factors and examine outcomes in general (Pinsonneault & Kraemer, 1989; Dennis et al., 1988; Nunamaker et al., 1989; Fjermestad et al., 1993). (p. 115)

Many frameworks adopt an *input, process, output* organisation (e.g. Pinsonneault & Kraemer, 1989; Dennis et al. 1988; Nunamaker et al., 1989; Mennecke, Hoffer & Wynne, 1992). This seems based on conceptualisation of GSS meetings as having a start, a finish and intervening process. Whilst this might be a convenient way to think about GSS, the classification of variables such as *group* as inputs, may restrict notions that groups develop continuously and thus could be thought of as input, process and output. A researcher using such a framework might miss the notion of group development. Inputs and outputs tend to be viewed as static entities whereas process tends to be viewed as a series of interactions. Classifying variables as inputs or outputs may arbitrarily deny them a dynamic nature. The prevalence of the input, process, output model may also relate to conceptions of decision making as involving a process of decision making and then a decision outcome. These conceptions are arbitrary in the sense that decision making could equally be viewed as a continuous process, with outcomes being snapshots in time, of the process.

Several GSS researchers (Dennis, 1991; Lewis & Keleman, 1990; Nunamaker et al., 1993) have drawn on the concepts of group process *gains* and *losses* (Hill, 1982; Steiner, 1972). This is inspired by Steiner's (1972) proposition:

The adequacy of the resources available to an individual or group determines its potential productivity; the appropriateness of its processes determines how well the actual productivity approximates its potential productivity
 Actual productivity = Potential productivity - Losses due to faulty process
 (p. 9)

Dennis (1991) includes the additive effect of *process gains* and produces a framework (p. 52, see also Nunamaker et al., 1993, p. 130) linking GSS to process gains and losses respectively. This framework reflects the attitude that GSS is designed to improve group productivity through increasing process gains and reducing process losses. This begs the question of what constitutes *productivity*.

Napier and Gershenfeld (1993, pp. 199-200) refer to group goal or *task achievement* and also *maintenance* - the extent to which a group satisfies the needs of its members. Many GSS researchers seem to have emphasised task achievement by measuring decision quality and the time taken to complete a task. Measurement of participants' satisfaction with process and outcomes has reflected the relationship between participants and *task*. Few GSS researchers have emphasised the maintenance of interpersonal relations, roles, norms, and group development. Even fewer GSS researchers have proposed or investigated the balance between maintenance and task.³

2.3.3. Summary

Theory in GSS is in its infancy. The inductive approach of grounded theory method, and the characteristics of relevance, fit, generality, control and understanding, offer a guide to theory development.

³ Bostrom, Anson and Clawson (1993) raise relational aspects of meetings, including relations to *task*, *interpersonal* relations, relations to *process* and relations to *self*. The authors claim "little GSS research has focused on relational outcomes especially at the affect or emotional level" (p. 150). Yet meetings demand a combined achievement of both task and relational outcomes, particularly as group and meeting activities are ongoing, and individuals will carry within them, their feelings towards group activity.

AST represents one model that has assumed some prominence in GSS research. It is not clear however, how AST deals with the facilitator led context common to commercial GSS application. The predictive ability of AST has not been tested.

A number of other frameworks have been proposed, each focussing on different aspects of GSS activity. In particular, some researchers have studied GSS from a process gain and process loss perspective. Overall, GSS theory development is varied.

In the following section, a review of longitudinal GSS research is undertaken.

2.4. Past GSS research on Perceptions and Longitudinal Development

Pervan (1994), in his review of 203 papers on GSS between 1981 and 1993, identified four studies that considered a longitudinal aspect; Garcia, Lewis and Keleman (1989), Miranda and Bostrom (1993), Chidambaram, Bostrom and Wynne (1990-91), and Zigurs, DeSanctis and Billingsley (1991). The latter three were student subject studies whilst Garcia et al. (1989) was a field study.

Further literature review revealed another six longitudinal studies; Gopal, Bostrom and Chin (1992-93), Chidambaram and Bostrom (1993), Chudoba (1993), Fuller and Trower (1994), Dennis (1991), and DeSanctis, Poole, Dickson and Jackson (1993). The latter two were field studies.

The studies are chronologically ordered and separated into student subject and field studies in Table 2.1. The studies are reviewed in detail in the following sections. A chronological order is followed. The student subject studies are considered first and are then followed by the field studies. The rationale for separating them is that past research (see Dennis (1991), and Dennis and Gallupe (1993)) has found considerable differences between the two types of research.

Table 2.1 Empirical GSS studies with a longitudinal aspect

Student subject studies	Field studies
Zigurs, DeSanctis & Billingsley, 1991 [*]	Garcia, Lewis & Keleman, 1989 [*]
Chidambaram, Bostrom & Wynne, 1990-91 [*]	Dennis, 1991 ⁺
Gopal, Bostrom & Chin, 1992-93 ⁺	DeSanctis, Poole, Dickson & Jackson, 1993 ⁺
Chidambaram & Bostrom, 1993	Barent, Krcmar, Lewe & Schwabe, 1995 ⁺
Miranda & Bostrom, 1993 [*]	
Chudoba, 1993 ⁺	
Fuller & Trower, 1994 ⁺	

2.4.1. Zigurs, DeSanctis and Billingsley (1991)

Zigurs, DeSanctis and Billingsley (1991) reported on attitudinal development and adoption patterns in GSS meetings.⁴ The research type was a student subject study, described as exploratory, and without the level of control evident in some laboratory experiment designs. The research questions were stated as:

whether groups resist or accept a specific [GSS] and whether rejection or adoption is related to users' perceptions of satisfaction, quality, and so forth. The primary concern is with the evolution of user attitudes as they emerge through repeated meetings in a group decision room. A secondary concern is the relationship between user attitudes and group performance. (p. 52)

The focus for the attitudes was stated as user *attitudes toward group processes and outcomes* rather than *attitudes toward the technology*. Whilst the latter was stressed as important, within the reported study it was claimed to be manifest in the *usage of the technology*.

^{*} Identified via Pervan (1994) literature review

⁺ Identified via general literature review

⁴ The 1991 article was based on work reported in Zigurs, DeSanctis and Billingsley (1989) at HICSS.

The study allowed participants the choice of using or not using the SAMM software thus permitting the participants control over adoption or otherwise. The methods described were predominantly use of self report questionnaires with a brief mention of observation of videotapes.⁵ The partially contrived research setting used two planning tasks, one required the student subjects to consider solutions to declining enrolments, and the other required the student subjects to develop a plan for meeting the university's goals for excellence.⁶ The process involved eight meetings of unfacilitated groups of students, that is, groups using a GSS without any external facilitation or technical help. This is consistent with the user driven SAMM philosophy, however, it is noted that commercial application of GSS has generally involved active process facilitation. Indeed, in the conclusion, the authors noted that facilitation support may be necessary to realise the benefits of GSS. The research is described as exploratory, and is difficult to follow as it is fragmented between the analysis of questionnaire data and post measurement observation of different adoption patterns. In fact the different adoption patterns appear to be first identified via the quantitative analysis and then retrospectively described based on observation of the sessions.

Given the non-facilitated nature of the GSS setting in this study (and indeed much of GSS research) it is difficult to compare with the real world setting of GSS where facilitators are the norm, and likely a significant factor in shaping the use and the perceptions of users. In real world use of GSS, the facilitator or facilitation team act as a mediator amongst the users, their problem, and the technology and processes to meet desired objectives. Past GSS research (particularly student subject research) seems to assume that GSS technology would be used directly by the users (groups) without facilitation. This research overlooks the complexity and sensitivities of group decision making situations that necessarily require a process role filled by a skilled professional, preferably one who is as independent as possible of the organisational context of the client group.

Zigurs et al. did not distinguish between attitudes and perceptions. This is in contrast to socio-psychology literature that describes attitude as a type of perception. Attitudes are, according to Milton, Entekin and Stening (1984, p. 27), "regularities

⁵ The questionnaires were instruments developed by Gouran, Brown and Henry (1978), and Green and Taber (1980).

⁶ Whilst the tasks were chosen to have a deal of "salience" for the subjects it is difficult to understand why *students* would be particularly concerned about declining enrolments in a University department. The issue would seem to be primarily a *staff* concern.

of an individual's feelings, thoughts, and predisposition to act toward some aspect of his or her environment". It is a matter of judgment as to when a feeling or thought becomes an attitude and in part would have to be judged according to the "regularity" that was displayed, a temporal aspect that was in fact part of the study.

The instruments used in the Zigurs et al. study, whilst based on previous study, are subject to the following criticism.

The Gouran, Brown and Henry (1978) instrument was originally developed for assessing qualities of decision making *discussions*. In fact, 11 of the 16 questionnaire items use the term *discussion*, as opposed to meeting or GSS meeting. GSS meetings are a mix of private written inputs through workstations and examination of public screens of aggregated work, in addition to verbal discussion. Discussion is thus a subset of a GSS meeting. The application of the Gouran et al. instrument to a GSS meeting raises questions of how participants interpret *discussion* in the context of a GSS meeting and whether *discussion* is the same as *GSS meeting*. Whilst Zigurs et al. (1991) state that the Gouran et al. instrument has been tested as valid and reliable, reading of the Gouran et. al. paper does not reveal any justification for the questions and scales used.

The Green and Taber (1980) instrument includes two questions concerned with the "correctness" of the decision. Given that planning tasks have no correct solution the wording of these questions seems inappropriate for the context.

The above comments point to the pitfalls of using instruments that have been developed for other purposes and in different contexts. Rather than assuming the context of GSS activity matches that of non-GSS group activity, it may be appropriate to initially study the GSS activity using an inductive approach in order to identify characteristics of GSS activity, some of which, say electronic communication, are not present in non-GSS group activity.

With regard to attitude development, Zigurs et al. reported that attitude scores "generally increased over meetings 1 through 4, dropped in meetings 5 and 6, and rose again in meetings 7 and 8" (p. 58).⁷ They reported that "dampened enthusiasm" was likely responsible for drops in attitudes observed in meetings five and six and

⁷ Attitudes were averaged across participants. It is difficult to interpret what an "average" attitude represents. The focus in this dissertation is to consider individual attitudes as of primary importance and the commonality across participants as of secondary importance.

associated with a second task.⁸ This raises the issue of whether the instruments were measuring enthusiasm and motivation (often an issue with experimental student groups), as opposed to the seven factors Zigurs et al. purported to measure.⁹ The authors noted that phase theories (Borman, 1975), describing reinforcement and celebration at the end of a project, might explain the raised attitudes in meetings three and four, and in seven and eight.

In examining attitudes among the eight groups, Zigurs et al. noted that attitudes were more consistent in the first three meetings, diverging in meeting four and showing greater divergence still by meeting eight. This was described as corresponding to varied adaptation to the GSS environment, with differences in attitudes emerging over time.

Amongst the eight groups, the authors described two categories termed "adopters" and "discarders". This categorisation was based on system usage as measured by the number of entries per person, although the number of entries showed a steady decline from meeting one through to eight. Zigurs et al. noted that the lack of a facilitator may have been responsible.

The Zigurs et al. (1991) study provides little illumination about attitudes beyond the observation that they varied across time. The key finding of the study is instead described as the recognition of two different patterns of adoption. These two patterns were identified based on *system usage* and were not related to *attitudes*. The authors measured the relationship between attitudes and system usage but found no relationship. Some attitude factors (perceived quality of discussion, participation and negative socio-emotional behaviour) showed relationships to the quality of the group work, where quality was judged by an external judge.

The authors' suggestions to users and developers were that one-off training was not enough, that continued support was necessary either through retraining or facilitator intervention. The latter confirms what has been apparent in commercial application of GSS.

⁸ Poor exam results were noted as an "exogenous" event that may have produced the drop in attitudes associated with meeting six.

⁹ The seven factors were reported as quality of discussion, group behaviour, participation, negative socio-emotional behaviour, solution satisfaction, decision scheme satisfaction, and emergence of an informal leader. The first two are from Gouran et al. and the latter are from Green and Taber.

2.4.2. Chidambaram, Bostrom and Wynne (1990-91)

Chidambaram, Bostrom and Wynne (1990-91)¹⁰ reported on a laboratory experiment designed to examine whether computer support affected the development of decision making groups and if patterns of development differed between manual and GSS groups. In undertaking their study, they noted "most GDSS studies have examined the effect of computer support during the first (and in fact the only) meeting of ad hoc groups" (p. 8). Their study focussed on two aspects of group development, *cohesiveness* and *conflict management*. They noted that there are many models of group development with no consensus on the type of development pattern, however, groups did follow some development pattern specific to their situation, thus they would focus on the situation of their study, and compare GSS with manual groups.

Cohesiveness was defined as "how close members feel to each other and their attraction to the group" (p. 13). This was measured using a modified version of Seashore's (1954) index of group cohesiveness. Conflict was not defined in the paper but was measured via two questions; how openly the group dealt with conflict and how effectively the group handled conflict. The questionnaires used five and seven point Likert scales respectively and were self report questionnaires.

Groups of undergraduate students undertook four meetings, one per week. At each meeting they undertook a separate case study. The case study required the students to play the roles of a board of directors of a winery. The meetings were facilitated but it was not clear from the paper whether this was scripted, that is, controlled or not. Twenty eight groups of five students were used. Motivation for involvement was based on the choice of writing an assignment or participating in the study. Additionally, a prize was offered of fifty dollars for the highest quality decisions.

Findings were that there were differences between GSS and manual groups in the measures of ability to manage conflict, and cohesiveness. For the first two sessions, GSS groups reported lower measures whilst they reported higher measures than manual groups in the latter two sessions.

Although not highlighted in the paper, it is worthy to note that throughout the four sessions both cohesiveness and ability to manage conflict were high for both treatments. High in the sense of being in the upper half of the measurement scale for conflict and the upper quarter for cohesiveness. Additionally, the differences, while

¹⁰ The study is based on Chidambaram's 1989 dissertation.

generally statistically significant, were differences of about one point on the 12 point range for the conflict scale and no more than 3 points on the 20 point range for the cohesiveness scale.

Chidambaram et al. explained the findings in terms of (1) adaptation (to technology and formation of cliques), (2) time transitions (after Gersick's work (1984; 1988)), (3) process support, and (4) GSS system attributes. A criticism is that the primary data, that is, measurements of conflict and cohesiveness, were not tested longitudinally in the sense of comparisons between sessions one, two, three and four, and thus are not used to support the explanations. Rather the primary data were used to present the primary findings of differences between manual and GSS groups based on cross-sectional comparison. Much of the support for the explanations is based on post experiment debriefings of the subjects.

In terms of adaptation to the GSS technology, the authors posited that "[GSS] groups needed time to appropriate the technology effectively, i.e., to become comfortable with the technology" (p. 20). The authors' implications for practice and research settings were that training and experience with the technology is important. Additionally, clique formation was said to be facilitated in the identified environment of manual groups, leading to decreased cohesion and lower ability to manage conflict.

Gersick's (1984; 1988) work on time transitions in groups was referred to as an explanation for changes, however, it was noted by the authors that the changes in the study half way through the four meetings were not *dramatic*, as described by Gersick. Indeed, the data of Chidambaram et al. in Table 3 p. 18 show that the absolute change, for ability to manage conflict, was greatest between sessions three and four rather than at the mid-point, between sessions two and three. Thus it is not clear on what data the authors based their view. Whilst "more effective conflict management and higher group cohesion" (p. 21) relative to manual groups is noted, there is no explanation of a decrease in the ability to manage conflict for GSS groups from session three to four.

Different processes were posited by Chidambaram et al. as explaining different levels of conflict management. In particular they noted that the GSS promoted discussion of one idea at a time whereas the manual process allowed group members to wander. Whilst Chidambaram et al. links this to effective conflict management via

Putman's (1986) work, they do not explain why this took until the third session to show a difference in favour of the GSS.

The authors describe a number of GSS system attributes including anonymity of ideas, the public screen and anonymous voting as helping group development, however, these are not clearly linked to cohesiveness and conflict which were the focus of their group development measures.

In summary, the major findings of the Chidambaram et al. (1990-91) study, that are relevant to the current study, are that changes in perceptions appeared over time and that some adaptation to the technology was evident.

2.4.3. Gopal, Bostrom and Chin (1992-93)

Gopal, Bostrom and Chin (1992-93)¹¹ measured certain attitudes (*attitudes toward the technology they [the participants] used* (p. 46)) as part of an experimental study designed to attempt to understand processes of GSS use. Specifically, their purpose was to:

demonstrate the use of AST to develop and test a research model, and to evaluate the use of AST in the context of the results of the research (p. 46)

Six attitude measures were defined. They were named 1) level of comfort, 2) degree of respect, 3) challenge, 4) ease of use, 5) usefulness, and 6) compatibility (see Table 2.2). These constructs were sourced from GSS literature on AST (items one, two and three), and IS literature on innovation diffusion and usefulness (items four, five and six).

¹¹ This work was earlier reported in Gopal, Bostrom and Chin (1992), at HICSS 25, and is based on Gopal's (1991) PhD dissertation. Whilst the latter was aimed at the effects of technology levels and task type on group outcomes, the Gopal, Bostrom and Chin (1992; 1992-93) papers emphasised the application of Adaptive Structuration Theory (AST), in the original study.

Table 2.2 Constructs described in Gopal, Bostrom and Chin (1992-93, p.53)

Construct	Definition	Reference
Level of comfort	A group's confidence and ease in use of system	Sambamurthy (1989), Poole & DeSanctis (1989)
Degree of respect	The value groups place on the structures provided by a technology	Sambamurthy (1989), Poole & DeSanctis (1989)
Challenge	Sense of accomplishment from technology use	Sambamurthy (1989)
Perceived ease of use	Degree to which the use of a method is seen to be free of effort	Davis (1989) based on Rogers (1983)
Perceived usefulness	Degree to which method is perceived to enhance one's performance	Davis (1989) based on Rogers (1983)
Perceived compatibility	Degree to which method is perceived as consistent with one's existing values and past experiences	Moore (1989) based on Rogers (1983)
Perceived outcome quality	How well or poorly a decision making discussion is perceived	Gouran, 1982
Satisfaction with outcome	Members' satisfaction with group solution	Green & Taber, 1980
Satisfaction with process	Members' satisfaction with decision scheme used	Green & Taber, 1980

Level of comfort and *degree of respect* came from Poole and DeSanctis (1989), where they posit that attitudes are important in shaping the appropriation of GSS. They describe *level of comfort* in the following:

[attitudes] set the tone for system usage and can reinforce productive or counterproductive trends in a group's experience with the [GSS]. One critical attitude is the group's level of comfort with the technology [Sambamurthy, 1988]. In studies at Minnesota we have observed great variation in comfort with [GSS] systems. Some groups are very *confident* and *easy* in their use of the system ... they readily adapt the GSS to novel problems and situations. Other groups are hesitant with the GSS...have trouble learning and remembering GSS operations and are reluctant to learn; they don't feel *confident* enough to experiment with the system...they tend to learn the system by rote and be "trapped" in obvious uses... [italics added] (p. 155)

Degree of respect for the technology, also posited as an *important* attitude, is described as follows:

Some groups come to *value the technology* and presume it will be *useful*, while others conclude the [GSS] has little value and distracts them from more important issues. Observation of groups using the SAMM system for extended periods uncovered groups at several points along the respect scale. These ranged from enthusiasts (groups that embraced the [GSS] as the answer to all their problems and became *fascinated* with the technology) to business-like groups (those who used the technology where it was suitable, but did not become lyrical over the system) to blase' groups (those who followed the [GSS] mechanically with *little enthusiasm*) to rejecters (those who *refused to use* the system at all). [italics added] (p. 155)

It is interesting that DeSanctis and Poole's observations are based on applications of SAMM which has a user driven rather than facilitated philosophy. One could hypothesise about the mediating effects of a facilitator who is a skilled user in terms of the design of a GSS meeting, and will do everything in their power to ensure successful use of the GSS technology by participants. This could involve reassuring participants, and thus improving participants' perceptions of comfort, ease of use, and confidence. The facilitator will also likely sell or promote the value of the technology, in particular, emphasise the features that would fit the clients' needs. Indeed, in the commercial world, to have progressed to the point where a group attends a GSS session, shows some degree of success in terms of managing participants' comfort with the technology and respect for the technology. Perhaps *attitudes toward the facilitator* may be an important determinant in shaping GSS use for facilitated settings. Confidence and respect for the facilitator might manifest in a greater likelihood of confidence and respect for the technology.

The *level of consensus* of appropriation (Poole & DeSanctis, 1989) is likely higher in facilitated sessions where the facilitator is shaping the participants' appropriation of the technology to ensure that the technology is used in the way the facilitator expects. Thus the facilitator might be thought of as the primary user of the technology, who in turn shapes the use of the secondary users of the technology, the participants. Indeed, Gopal et al. (1992-93) noted in their study (p. 52), that they assumed they *controlled* the level of consensus, via using facilitators who ensured that the groups followed specified procedures and discouraged participants from actively altering procedures. In commercial application, until the participants

become better informed about the technology and facilitation, than the facilitator, or they do not respect the facilitator's views, or the technology, it seems likely that participants will follow the facilitator's directions.

Gopal et al. (1992-93) did not provide a conceptual definition of attitude. The usage of the term within their study refers to the first six researcher constructs in Table 2.2 which they described as "attitudes of group members *toward the technology* they used...obtained from AST as well as from other information technology researchers" [italics added] (p. 46). Interestingly, the authors also measured individual's perceived outcome quality (via Gouran, 1982), satisfaction with outcome (via Green and Taber, 1980), and satisfaction with process (via Green and Taber, 1980). The Gouran and, Green and Taber instruments were the same instruments used in the Zigurs, DeSanctis and Billingsley (1991) study described earlier. However, Zigurs, DeSanctis and Billingsley (1991) used the term attitudes for all the self report measures. Thus in one study, Gopal et al. (1992-93), *attitude* refers to six particular self report measures and not some other measures (outcome quality, satisfaction with outcome and satisfaction with process) whereas in Zigurs et. al. (1991), Gopal et al.'s six attitude toward the technology measures, are not measured, however, outcome quality, satisfaction with outcome, and satisfaction with process, are measured and referred to as attitudes.¹² Neither paper provides a conceptual definition for attitude. The lack of conceptual definition and differing usage of the term, makes synthesis of research, difficult and confusing. It does seem, however, that Gopal et al. (1992-93) were focussed on *attitudes towards the technology* whereas Zigurs et al. (1991) excluded explicit consideration of the technology and included attitudes toward group behaviour, personal task participation, socio-emotional behaviour and leadership.

Gopal (1991) (upon which the work of Gopal et al. (1992-93) is based¹³) did describe the construct of attitude by referring to Fishbein and Azjen, (1975; 1981) and researchers in IT (Schultz & Slevin, 1975; Robey, 1979; Davis, 1985; Christensen, 1987; Pavri, 1987; Moore, 1989). Whilst citing Moore (1989) as stating there was no universally accepted definition of the construct, Gopal, emphasised Fishbein and Azjen's (1975) treatment of attitude in their *theory of reasoned action*.

¹² In fact the Zigurs et al. (1991) study uses the Gouran et al. (1978), and Green and Taber (1980) dimensions as; 1) perceived quality of meeting, 2) group behaviour assessment, 3) personal task participation, 4) negative socio-emotional behaviour, 5) solution satisfaction, 6) decision scheme satisfaction, and 7) informal leadership.

¹³ Confirmed in email correspondence with Bostrom 13/10/95

Fishbein and Azjen's definition of attitude is "a learned pre-disposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (p. 6). Their emphasis is that attitude is the *feeling* or *affective* component of perception. They additionally include *evaluations* as attitude, claiming that to *evaluate* something as positive is to have a positive *feeling* about it. In particular, they distinguish between *attitudes*, *beliefs*, *intentions* and *behaviour*:

- *attitude* - affect (feeling, evaluations)
- *belief* - cognition (opinions, knowledge, beliefs, thoughts)
- *intention* - conation (behavioural intentions)
- *behaviour* - observed overt acts

Fishbein and Azjen's (1975) conceptual framework, places *beliefs* as the fundamental building blocks for shaping attitudes, intentions and behaviours. The following example from the authors serves to illustrate the schematic presentation in Figure 2.2.

a person may hold many beliefs about the Democratic Party, such as 'the Democratic Party is disorganized', 'the Democratic Party is in favor of increased social security benefits', 'the Democratic Party is against big business' etc. . These beliefs may lead the person to hold a moderately favorable attitude toward the Democratic Party. This attitude leads to a set of intentions which, in their totality, are also moderately favorable. Thus the person may intend to vote for a Democratic candidate and to donate money to the party's campaign fund, but not to canvass [his or her] neighborhood to raise money for the party. (p. 15)

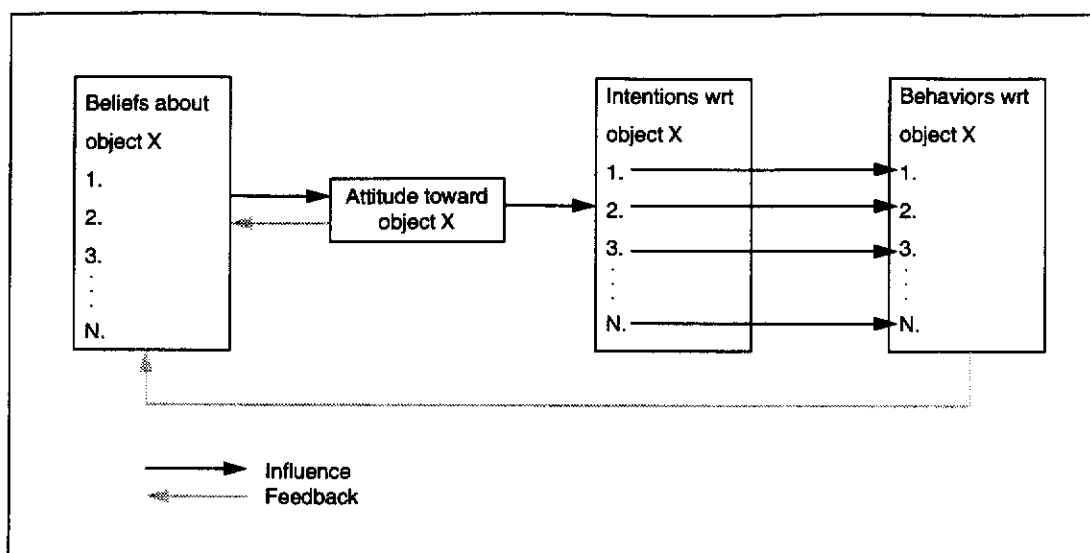


Figure 2.2 Schematic presentation of conceptual framework relating beliefs, attitudes, intentions, and behaviours with respect to a given object (Fishbein & Azjen, 1975, p. 15)

With regards to behavioural intentions, Fishbein and Azjen posit that a person's intentions are shaped by beliefs about the *behaviour* rather than beliefs about the *object* of the behaviour. A person's *attitude toward performing a behaviour* is seen as being related to; i) beliefs that performing a behaviour will lead to certain consequences and an evaluation of those consequences, and ii) beliefs of a normative nature, beliefs that certain referents think the person should or should not perform the behaviour in question. The totality of these normative pressures is referred to as the *subjective norm*. The conceptual framework for predicting intentions and specific behaviours is given in Figure 2.3.

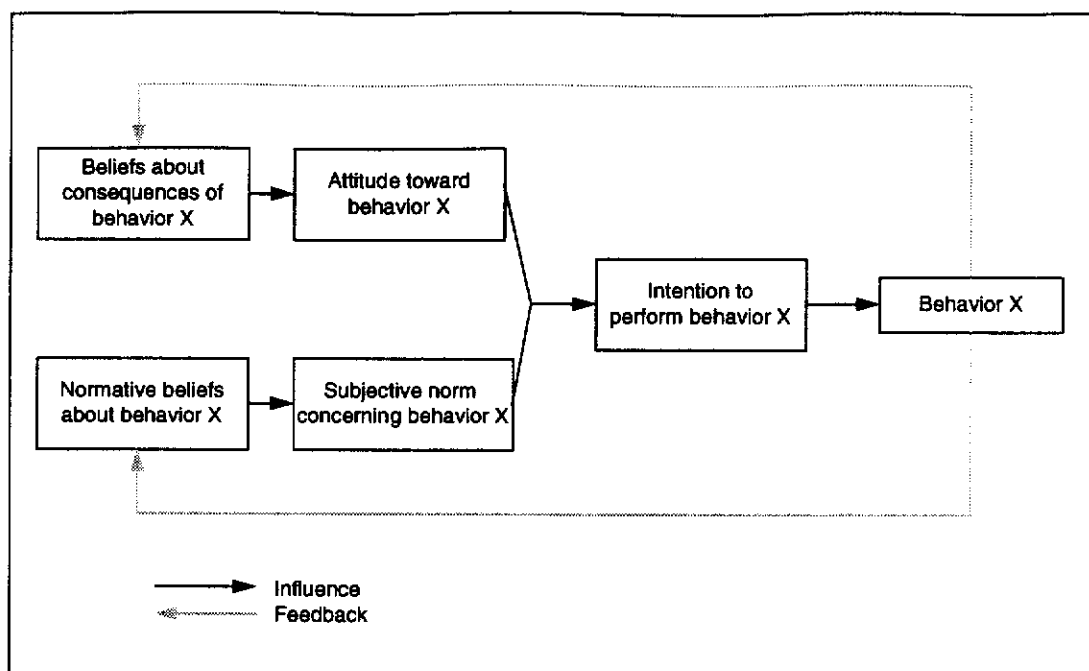


Figure 2.3 Schematic presentation of conceptual framework for the prediction of specific intentions and behaviours (Fishbein & Azjen, 1975, p. 15)

In the absence of considering operational definitions (at the scale level) of each of Gopal et al. (1992-93) and Zigurs et al. (1991) constructs and comparing them with detailed reading of Fishbein and Azjen's operational definitions, it is difficult to clearly classify the two studies' constructs as measuring attitudes or beliefs. Perhaps what is more important is that Gopal et al. drawing on Poole and DeSanctis (1989; 1990), posit that there are attitudes that the participants hold and that these effect the participants' experience and use of the GSS. The key questions may be: 1) What are the attitudes? and 2) How are they shaped and how do they shape the GSS experience?. Answering these might allow a meeting designer such as the facilitator, at worst, to understand why participants have varying experiences and at best, to shape the attitude process to bring about desired outcomes.

The measures of the Gopal et al. (1992-93) study were collected over two GSS sessions. A suggested hypothesis from the study was that attitudes prior to GSS use are important determinants of the process of GSS use. This hypothesis was inferred by results that showed a strong association between measured attitude in the second GSS session and measured attitude in the first GSS session. The authors explained that this could mean that relatively little attitude was formed during a GSS session, rather it existed prior to the GSS sessions. It is noted that prior attitudes were not collected as part of the study hence an alternative explanation may be simply that

attitudes did not change between session one and session two. Additionally, there exists the possibility that attitudes changed markedly from prior to session one, to post-session one. This possibility can neither be supported or denied in the absence of data on prior attitudes.

Another result was that a smaller amount of the variation in outcome (as measured by outcome quality, outcome satisfaction and process satisfaction) was explained by attitudes to the technology in the second session, compared to the first. One explanation for this was that familiarity with process was decreasing the strength of relationship.

Gopal et al. (1992-93) stressed that the Partial Least Squares (PLS) modelling used was dependent on the correct specification of model, in the sense that path coefficients used to infer strength of relationships were artefacts of the constructs and linkages specified.

Relevant to this dissertation are the authors' suggestions that attitudes are important in GSS use and "a wider range of attitudes should be identified and studied...in order to identify the specific attitudes that can be manipulated or influenced to promote GSS adoption in organisations." (p. 67). Additionally, the authors called for more longitudinal studies:

there appears to be a strong case for the study of GSS in a longitudinal mode. The value of this form of research is implied by the results of this study, which show that effects of certain variables appear to differ from the first to the second meeting. The importance of studying GSS in this manner is also suggested by the fact that groups often need more than a single exposure to the technology to start incorporating the new methods into the way they normally work, and by the fact that real groups are ongoing, and can rarely be completely characterised by their behavior at a single meeting. (p. 67)

2.4.4. Chidambaram and Bostrom (1993)

Chidambaram and Bostrom (1993)¹⁴ reported a laboratory experiment investigating group performance over time. Group performance was operationalised as the number

¹⁴ This study, like Chidambaram, Bostrom and Wynne (1990-91), is based on Chidambaram's 1989 PhD dissertation.

of alternatives generated and the decision quality. The number of alternatives generated was measured, following a brainstorm process, by two evaluators who assessed the number of unique ideas. Decision quality was assessed by an external panel of judges. These judges were asked to attest to the feasibility and effectiveness of the recommended decisions.

The research design was that described for Chidambaram, Bostrom and Wynne (1990-91), that is the research was designed to compare GSS with manual groups. Twenty eight groups of five students participated. Each group undertook four decision making cases.

One finding was that GSS groups produced more alternatives than manual groups after the first session. Furthermore, this difference increased over time. However, there was no statistically significant difference between GSS groups from one session to another. In other words, the difference between GSS and manual groups was due to a decrease over time for manual groups, while the GSS groups maintained a fairly constant number of generated ideas.

With regard to the quality of the decisions, the finding was that there was no statistically significant difference between GSS and manual groups. Furthermore, there were no statistically significant differences over time.

Thus the formal quantitative analysis of number of alternatives and decision quality provided no evidence for changes in GSS groups over time. The authors did, however, indicate that post experiment debriefings and questionnaires provided support for changes over time. In particular, the authors claimed that GSS groups "learned to use the technology and grew more comfortable with it" (p. 460). The authors thought that, through the use of anonymity and simultaneous input, the GSS groups maintained creativity whereas manual groups, lacking these benefits, became more inhibited and thus their creativity decreased. It is interesting, however, as to why GSS groups were unable to improve the number of ideas generated over time, given that their comfort with the technology was improving.

With respect to the lack of evidence of an increase in quality, the authors suggested "it may take longer to achieve increases in quality than increases in quantity" (p. 465). In particular, they suggested some stages of development including:

- initial difficulty in incorporating the technology,
- awareness about the potential of the technology, and
- acceptance of the technology. (p. 461)

Key recommendations from the study that are relevant to this dissertation are that "one-time performance of ad-hoc, zero-history groups is not entirely indicative of their longer term performance" , and there is a "need for conducting more longitudinal studies of group behavior and performance in the future" (p. 465).

2.4.5. Miranda and Bostrom (1993)

Miranda and Bostrom (1993) reported a longitudinal controlled laboratory experiment which had subjects self report on their perceptions of the amount of group conflict, conflict management strategies used, and the productivity of the conflict. The longitudinal aspect consisted of five sessions, held one week apart, the first of which was a training session. The tasks used were four case studies described as "independent" where the undergraduate student participants played the roles of the board of directors of a winery.¹⁵ In contrast to the Zigurs et al. (1991) study, the sessions were facilitated, however, facilitation was "scripted" in empathy with a controlled experiment design. Unlike the Zigurs et al. study, there was a control condition which consisted of groups using flip charts, paper, and pencil, rather than GSS technology. The instruments used were self report questionnaires developed for the study that included seven point Likert scales .

Findings were that GSS use appeared to result in less interpersonal conflict, use of more constructive conflict management strategies, and contributed to the experience of productive conflict. With regards to the temporal experience, Miranda and Bostrom were less conclusive, stating:

¹⁵ The four cases are known as the Palo Verde Vintners Inc. (PVVI) suite of four decision making cases and were used by Chidambaram (1989), Miranda (1991), and Chidambaram, Bostrom and Wynne (1990-91). Miranda and Bostrom (1993) described their methodology as essentially the same as that used by Chidambaram (1989).

One of the objectives of this study was to examine the impact of GSS use over a period of time. However this yielded a possible contamination from group transitions. Transitions experienced by the two sets of groups tended to cloud the differences across the GSS-supported and control groups. These transitions also made it difficult to discern clear developmental patterns. Research that varies the life-span of groups may help parse out, or provide a better understanding of, transition effects. (p. 93)

By transitions, Miranda and Bostrom referred to Gersick's (1988;1989) theorising that groups undergo periodic transitions. In their experiment they describe some control groups' experience in the third decision making session. During debriefing these groups reported that they were *bored*. Whilst Miranda and Bostrom describe this as a transition, it seems to this author that the boredom may well have been an unexpected artefact of students becoming demotivated with tackling the case studies, similar to the reduced enthusiasm that Zigurs et al. (1991) described in their study. Indeed, Miranda and Bostrom posed an explanation for low conflict levels as being "poorer motivation among participants" (p. 91) than participants in real world tasks.

Of some interest to this dissertation study is that all profiles for GSS supported groups from the Miranda and Bostrom study show large changes in a positive direction between the first (training) session and the second session, particularly for the factor *productivity of conflict*, which included questions about satisfaction with the group process. These changes are larger than the control groups. Miranda and Bostrom describe the profiles for GSS supported groups as stabilising after the training session. Whilst they attempt to explain changes in terms of structuration theory, the profiles are not that consistent apart from the atypical nature of measurements for the first training session.

Apart from their important findings about conflict, Miranda and Bostrom's contributions to understanding about longitudinal changes, are the suggestion of Gersick's (1988; 1989) transitions theory, and the suggestion of appropriation of technology structures through repeated use.

2.4.6. Chudoba (1993)

Chudoba (1993) investigated the research question "In what ways and to what degree does use of a [GSS] by a small group change over time?" (p. 21). This question was pursued via a student subject study in which 17 three and four person groups met, on three occasions for 90 minutes, to evaluate undergraduate programs. An Adaptive Structuration Theory perspective was adopted, and groups were permitted to use or not use the GSS technology as they saw fit. Independent variables were the presence or absence of a designated leader, and time. Chudoba described the findings as:

groups with designated leaders generally appropriate[d] [GSS] technology in ways faithful to its design. The presence or absence of a designated leader had no effect on attitudes toward the [GSS]-process or progress the group was making on the task. Attitudes about communication within groups became more positive over time (p. 14).

To avoid competition between an external facilitator and an internal leader, the experiment was designed without an external process facilitator, that is, the participants devised and ran their own process. A technical facilitator (the researcher) was on hand to answer any questions about the software.

Data sources included questionnaire, transcripts of verbal discussions at the sessions, and the groups' electronic discussions. *Communication* was a researcher construct that included four questions:

- It is easy to talk openly to all members of this group during our electronic discussions.
- It is easy to ask advice from any member of this group.
- I find it enjoyable to talk verbally to other members of this group.
- It is easy to talk openly to all members of this group when we have verbal conversations. (p. 86)

It appears equivocal as to whether a respondent would interpret *talk* in the first question as verbal or electronic, although Chudoba later interprets communication as being both verbal, and electronic.

Based on statistical analyses, Chudoba interpreted "that as people became more familiar with the technology and each other, they felt more comfortable

communicating openly during their verbal and electronic discussions" (p. 94). The fact that the groups were described as having no history, leaves open the possibility that the improvement in openness of communication was principally due to members becoming familiar with each other, as much as becoming familiar with the technology.

Chudoba also used a construct she named *group process*. Four questionnaire items were used to measure this:

- This seems to be a good process to use to evaluate the College of Business.
- Today's meeting was tedious and boring.
- Using the computer technology makes it harder for me to work with other people in my group to accomplish our goals.
- I am satisfied with the process we are using to evaluate the College of Business. (p. 85)

No significant relationship with time was indicated by the statistical analysis. Chudoba also interpreted *process* as being *GSS process* and interpreted that "attitudes toward the [GSS]-process may not have varied over time because the task was relatively straightforward and/or because the student-subjects were uncertain about whether their suggestions would be used by university administrators." (p. 131) These interpretations echo common problems of student subject studies, that is, simplistic tasks and low motivation of subjects.

With regard to software familiarity, Chudoba noted that following 15 minutes of software instruction, and questions of the researcher during the sessions, "by the end of the first meeting, all groups were familiar with the basic functionality of the software" (p. 141). She observed that it could be assumed that all participants were computer literate because of their course experience. Chudoba claimed then:

that a computer literate, ad hoc group whose members have had little or no previous experience with the software should be able to successfully use this particular [GSS] software to complete a task, even when there is no experienced facilitator or session leader in the group. (pp. 141-142)

This claim, possibly overstated, would seem contingent on the complexity of the task. Complex tasks require process design and group process support, roles

provided by facilitators, and possibly the provision of technical support. It was noted that Chudoba provided some initial process design and gave technical support during the study.

Whilst aspects of Chudoba's research appear relevant to this study, the focus on leadership from within the group, rather than via an external facilitator, is a marked difference. The context of asking a person using GSS for the first time to provide facilitator type behaviours, is quite different to the context of experienced facilitators in commercial GSS applications.

2.4.7. Fuller and Trower (1994)

Fuller and Trower (1994) proposed a longitudinal study (five sessions) in order to study the roles of facilitator, non-facilitating members, and the technology. One research question was "Do these roles differ across time?". The proposed study, however, differs significantly from the study in this dissertation. Firstly, the authors proposed using undergraduate student groups undertaking course requirements. Additionally, the researchers proposed using questionnaires with predefined measures from past literature, including defining independent and dependent variables. The methodology is clearly quantitative. Furthermore, the facilitation role consisted of training two members of the student groups in process and technical facilitation respectively. Fuller and Trower refer to the issue of the training being brief, but claim that Chudoba (1993) has indicated a short training period *may* be adequate. I argue that the context where complete novices are learning process and technical facilitation motivated by course requirements, is radically different from the context of experienced facilitation teams, as in this dissertation study.

The major instrument for examining roles in Fuller and Trower's study is based on Benne and Sheats (1948). It is not clear from the paper as to who will be the authority¹⁶ for determining the roles that each participant played, whether only one role can be chosen, or several, and whether roles beyond those described by Benne and Sheats would be considered. Nevertheless, the paper raises the issue that there are different roles within the socio-technical system of GSS, some fulfilled in part by humans others by the technical system, and that it is sensible to examine role development over time, rather than based on single occasion use.

¹⁶ A participant could report on self and/or on others. An observer could report on each participant. Which view is to be privileged?

This completes review of the student subject studies with a longitudinal aspect. A summary is provided in Table 2.3. The following sections review the field studies.

Table 2.3 Summary of *student* subject studies with a longitudinal aspect

	Zigurs, DeSanctis & Billingsley, 1991	Chidambaram, Bostrom & Wynne, 1990-91 ¹⁷	Gopal, Bostrom & Chin, 1992-93 ¹⁸	Chidambaram & Bostrom, 1993 ¹⁹	Miranda & Bostrom, 1993 ²⁰	Chudoba, 1993	Fuller & Trower, 1994 (Proposed study)
Foci	Adoption, Attitudinal development	Cohesiveness, Conflict Management	Test a model based on AST	Group performance	Conflict and conflict management	Designated leader, use over time, AST	Roles of facilitator, members and technology over time
Relevant Findings	Some groups used the technology some ceased to use it Attitudes increased over first four meetings, dropped in five and six then rose in seven and eight	GSS groups lower than manual in first two sessions, higher in latter two	Strong association between attitudes toward technology in first session and attitudes in second session Attitudes toward technology explain less of outcome and process perceptions in second session than in first	GSS groups maintained productivity over time whereas manual groups decreased in productivity No differences in decision quality	Profiles for GSS groups showed large positive changes between first (training) session and second GSS session	Attitudes about communication became more positive over time	Proposed study

¹⁷ Some information here is from Chidambaram (1989), the original study.

¹⁸ Some information here is from Gopal (1991), the original study.

¹⁹ Some information here is from Chidambaram (1989), the original study.

²⁰ Some information here is from Miranda (1991), the original study.

Table 2.3 ctd. Summary of *student* subject studies with a longitudinal aspect

	Zigurs, DeSanctis & Billingsley, 1991	Chidambaram, Bostrom & Wynne, 1990-91	Gopal, Bostrom & Chin, 1992-93	Chidambaram & Bostrom, 1993	Miranda & Bostrom, 1993	Chudoba, 1993	Fuller & Trower, 1994
Facilitation	Internal	External	External	External	External	Internal	Internal
		Process and technical facilitation carried out by single person Scripted	Process facilitator Technical facilitator Scripted	Process and technical facilitation carried out by single person Scripted	Process and technical facilitation carried out by single person Scripted	Any group member permitted to start software tools Randomly designated leader in some groups Technical support from researcher	Train two members of student group
Meetings	8	4	2	4	5	3	5
Training for participants	Prior to the 8 meetings	No training mentioned	Prior to the two meetings	No training mentioned	Yes, the first of the five meetings	Yes, 15 minutes during first meeting	Two participants who will provide process facilitation and technical facilitation respectively
Duration	2 hours	controlled to be 1.5 hours max	3 hours session one (training and task one), 2 hours session two	controlled to be 1.5 hours max	allowed to vary - about 1 hour	1.5 hours	not stated
Time between meetings	2 days	1 week	2 weeks	1 week	1 week	not stated	not stated

Table 2.3 ctd. Summary of *student* subject studies with a longitudinal aspect

	Zigurs, DeSanctis & Billingsley, 1991	Chidambaram, Bostrom & Wynne, 1990-91	Gopal, Bostrom & Chin, 1992-93	Chidambaram & Bostrom, 1993	Miranda & Bostrom, 1993	Chudoba, 1993	Fuller & Trower, 1994
Elapsed time	5 weeks	4 weeks	2 weeks	4 weeks	5 weeks	2 weeks	not stated
Group size	4,5	5	5-9	5	6,7	3,4	5
Number of groups	8	28	33	28	25	17	30
Group History	not stated	none	none	none	none	none	not stated
Tasks	two	four	two	four	four	one	five
	Uni goals, Declining enrolments	Directors of winery	Parking problem (Generate), Misconduct case (Evaluate)	Directors of winery	Directors of winery, 5th case for training	Evaluate undergraduate programs	Cases on MIS subject matter
GSS software	SAMM	GroupSystems	OptionFinder, GroupSystems	GroupSystems	GroupSystems	GroupSystems	GroupSystems
Incentives	Course credit	Course credit, \$50 prize	Course credit	Course credit, \$50 prize	\$10 per member prize	Course credit, and interest	Course credit
Instruments	Green & Taber (1980) Gouran et al. (1978)	Seashore (1954), developed instrument for conflict	Green & Taber (1980) Gouran et al. (1978), Sambamurthy (1989), Davis (1989), Moore (1989)	evaluators counted ideas from meeting documentation, panel of experts judged decision quality	developed for study	questionnaire developed for study, coding scheme developed for study	Benne & Sheats (1948)

Table 2.3 ctd. Summary of *student* subject studies with a longitudinal aspect

Constructs	Zigurs, DeSanctis & Billingsley, 1991 system entries, perceived quality of meeting, group behaviour, participation, negative socio-emotional behaviour, outcome satisfaction, process satisfaction, leadership	Chidambaram, Bostrom & Wynne, 1990-91 cohesiveness, ability to manage conflict	Gopal, Bostrom & Chin, 1992-93 comfort, respect, challenge, ease of use, usefulness, compatibility, outcome quality, satisfaction with outcome, satisfaction with process	Chidambaram & Bostrom, 1993 performance - number of ideas generated - decision quality	Miranda & Bostrom, 1993 amount of conflict, conflict resolution strategies, productivity of conflict	Chudoba, 1993 designated leader, communication, process, progress	Fuller & Trower, 1994 role assumption, influence, facilitator power, facilitator role overload, perceived percentage of comments, outcome and process satisfaction
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2.4.8. Garcia, Lewis and Keleman (1989)

Garcia, Lewis and Keleman (1989) conducted a field study described by them as *action research* (Lewin, 1948; Frohman, Sashkin & Kavanagh, 1976; Peters & Robinson, 1984), on GSS application to the planning activities of a university's Human Resource Division (HRD). The GSS was used annually over a three year period to assist the HRD's normal planning process. The three sessions were facilitated, as is the norm for GSS application outside of the laboratory. Although the group size was not explicit in the paper, the analyses showed 13 respondents in year one, 10 respondents in year two, and 12 respondents in year three. The authors noted:

Although important questions about the features of [GSS] can be answered through research in controlled and limited conditions, such studies are unable to examine the effects of [GSS] on real groups over time. Researchers need to determine the longitudinal effects of [GSS] on real decision making groups within organizations which meet periodically to examine problems ... The need for longitudinal studies is significant because extended groups are a key components [sic] of organizations (e.g., planning groups, research and development teams, quality circles). (p. 1)

The study explored four areas; 1) perceived effects of GSS on the planning process, 2) the quality of the final plan, 3) the impact on work group relations, and 4) the development of an adaptive design for GSS application. A post session self report questionnaire with five point Likert scales was used to assess the planning process. The nine questions concerned; 1) ease of use, 2) use of a computer for planning, 3) satisfaction with process, 4) satisfaction with outcomes, 5) productivity of the planning session, 6) efficiency of the group, 7) effectiveness of the group, 8) would you use GSS again?, and 9) would you recommend the GSS to others?.

Analysis over the three sessions revealed statistically significant differences for items four, five and seven, with the results for year one of the study being significantly more positive than those in year two. The authors noted difficulty explaining this change and suggested the possibility of a "gee whiz" effect with the introduction of a new approach to planning, that then wore off. Additionally, they noted that the second year script or agenda had been complicated and perceived as time consuming. Participants had been required to manually submit some data, which may have been perceived negatively. The general trend in the data was that

perceptions dropped a little in the second session and recovered in the third session, but not to the same level as the first session. Perceptions however, were all statistically significant, on the "favourable" side of the five point Likert scale.

Participants were questioned about perceptions of *work group relations* pre GSS, post GSS year one, and post GSS year two. These questions were conducted independently of the GSS planning to see if the infrequent GSS use had an effect on work group relations in the intervening twelve months. A sub scale from Camann, Fishman, Jenkins and Klesh (1983) was used. Garcia et al. explained that the scale measured the following dimensions of work group relations; 1) the degree to which group members perceive each other as being homogeneous, 2) the degree to which group members have clear expectations of a common goal, 3) the degree to which members feel part of a cohesive team, 4) the degree to which communication is viewed as open and free, and 5) the perceived level of fragmentation or lack of trust among group members. Analysis showed no statistically significant differences over time and Garcia et al. concluded that "infrequent periodic use of a [GSS] for planning does not have a negative impact on group climate" (p. 9)

In discussing impact on work relations, the authors noted that GSS technology is not designed to manage interpersonal relations, rather it is designed to accomplish tasks. This raises the issue of whether GSS technology affects group relations by accident rather than design. Additionally, without extended or frequent use of GSS it seems possible that the technology would have little effect on relations outside of the GSS meetings. Within GSS meetings, it may be that facilitators can have greater impact on relations than the technology, and that facilitators can use the technology to develop desirable relations between group members.

GSS impacts on *group relations* during the GSS sessions were assessed via two items: 1) Compared with ordinary meetings what impact did the GSS have on the equality of each member's opportunity to voice their own opinions? and 2) While working with the GSS did any of the group members emerge as a leader?.

Results were that the greatest perception of equality occurred in the first session and then decreased in the subsequent sessions. Greater numbers reported the emergence of a leader in the third session. Garcia et al. noted that GSS is designed to promote equality of opportunity and that this seemed to take place. Whilst the GSS appeared initially to diminish emergence of a leader, the authors noted:

The absence of leadership may be a good thing if what our respondents mean by leadership is dominance. On the other hand, if effective participative leadership is reduced then [GSS] is missing the mark. Given the infrequent use of [GSS] in this case it is difficult to know if the absence of leadership is due to characteristics of the [GSS] or reflects the participant response to a novel technique which initially inhibits leadership until the novelty of the technology wears off. (p. 10)

Key points from the Garcia et al. study relevant to this study are that perceptions did change over time and explanations included *novelty* and *context*, for example, the effects of task complexity in session two. In terms of the focus of the Garcia et al. study, which was on adaptive design for recurring GSS application, the aspect of *learning* was also noted. Whilst the learning was focussed on learning from the perspective of the facilitation team, it is also possible to consider learning experienced by participants. The research of this dissertation is designed to reveal the participant viewpoint.

A number of other relevant longitudinal field studies were identified beyond Garcia et al., which was the only such study reported by Pervan (1994).

2.4.9. Dennis (1991)

Dennis (1991) undertook a number of experimental and field studies to investigate effects of GSS technology. Whilst not primarily concerned with temporal effects, Dennis did examine three business teams using GSS technology over two to five meetings, in a field setting. This study thus had a longitudinal aspect. Whilst these teams did not receive active process facilitation, rather some technical facilitation, Dennis did note that perception scores changed over time, showing an increase from the first meeting. He suggested that there may have been a "need to adapt to the new meeting process in the [GSS] environment" (p. 235) and "initial reactions to [GSS] may not be good indicators of their [the users] subsequent reactions once they have explored and adapted to the new work processes possible in [GSS] environments." (p. 242).

In his conclusions to the extensive empirical studies conducted, he reiterates these issues:

One question requiring more investigation is, how do user perceptions of [GSS] change over time?²¹ The organizational groups...responded very favorably to the [GSS] technology...first-time users may [also] have been influenced by a 'novelty effect'. In contrast, the initial responses of the small business teams ... were less favorable, but gradually increased as the teams gained experience. This, too, suggests a novelty effect, but a negative novelty effect - perceptions of the novel technology were lower than after subsequent use. Thus the perceptions and performance of [GSS] groups may change, for better or worse, with repeated use. (p. 299)

2.4.10. DeSanctis, Poole, Dickson and Jackson (1993)

DeSanctis et al. (1993) undertook a field study of GSS use by three teams from the IT department of the oil company, Texaco. The main purpose of their study was "to show how the constructs and propositions of [AST] can explain the patterns of [GSS] adoption in teams" (p. 3). The study examined three teams' use of GSS over a period of eight months. Two of the teams met weekly whilst the other met every three weeks. The data collection was referred to as "limited to a sampling of teams and team meetings" (p. 26). The quantity of the sample appeared to be six events for team one, six events for team two, and ten events for team three, although it was not explicit how or why this sample was chosen. Analysis was conducted in relation to a model based on AST under the concepts; 1) inputs to group interaction, 2) group interaction process, and 3) outcomes. Methods used included analysis of videotape, structured questionnaires, interviews with a subset of participants, and observation. The analytic techniques for the non-questionnaire data were not reported, apart from mention of a protocol analysis of the videotapes.

In common with other studies, *attitude* was not defined conceptually but was measured via items described by Green and Taber (1980), Gouran, Brown and Henry (1978), and Sambamurthy (1989). The first two refer to self report questionnaires and hence could be regarded as measuring perceptions. Sambamurthy (1989) operationalises two of the AST attitude constructs, *comfort* with the technology, and *respect* for the technology. DeSanctis et al. (1993) processed the questionnaire items into five factors which they then reported in two groupings, *attitudes toward group process* and *attitudes toward GDSS*. The reported quantitative analysis (table 4 p.

²¹ Interestingly, this wording is quite close to the wording of the research question in this thesis but was discovered subsequent rather than prior to research question formulation.

18) of these did not include a temporal dimension and is assumed by this author to be averaged over all sampled meetings.

The three teams reported in the study, used a GSS facility within Texaco. Technical and process facilitation was undertaken from *within the teams* rather than by external facilitation professionals. This is consistent with the user driven philosophy of the software SAMM and is a significant difference from the usage reported in this dissertation where an external professional facilitation team is directing the GSS sessions.

The authors predicted democratic, participative, systematic, creative, orderly and documented activity based on structural analysis of GSS technology features. They reported that whilst some of these aspects were realised, there were marked differences amongst the teams' usage. Their explanations for the differences were; 1) the varying nature of team tasks, 2) the commitment to the overall task - Total Quality Management (TQM), 3) the leader's behaviour, and 4) the atmosphere of the meetings. The influence of the leader's behaviour lends support to the primacy of facilitator roles and is particularly significant for GSS research given the differences in leader behaviour that would exist between an independent, professional facilitator and an internal, low skill facilitator with vested interests in the content of the meetings. The latter was the case in the reported study. "Successful" GSS applications (e.g. thorough analysis, equal opportunity for participation) are less likely when leaders exhibit behaviour that involves a *directive management style pressuring the group to move on and cutting off participation at key times* as was evident in one of the teams in the study. These behaviours would be contrary to the behaviour of an external GSS facilitator who is more likely to consciously emphasise democratic, participative and documented activity, in empathy with GSS structures, rather than a leadership style motivated by vested interests or resulting from ignorance of appropriate facilitation role behaviours.

Attitudes reported in the study are described in both quantitative descriptions based on the questionnaires, and researcher interpretations, presumably through observation and interviewing. Under a model presented in the paper (see Figure 2.4), attitudes were considered as part of *group interaction* and then again as *outcomes*. The former consisted of *attitudes toward appropriation* and the latter of *attitudes toward group process* and *attitudes toward GSS*. The paper is confusing in the distinction between these describing the *attitudes toward appropriation* as "attitudes - positive, neutral or negative - displayed by group members as they appropriate

[GSS] structures ... the extent to which groups are confident and easy in their use of the [GSS] and perceive the technology to be of value to them in their work" (p. 9) and yet *attitudes toward group process* and *attitudes toward GSS* are also described (p. 18) as "impact of technology on work" and "comfort with technology".

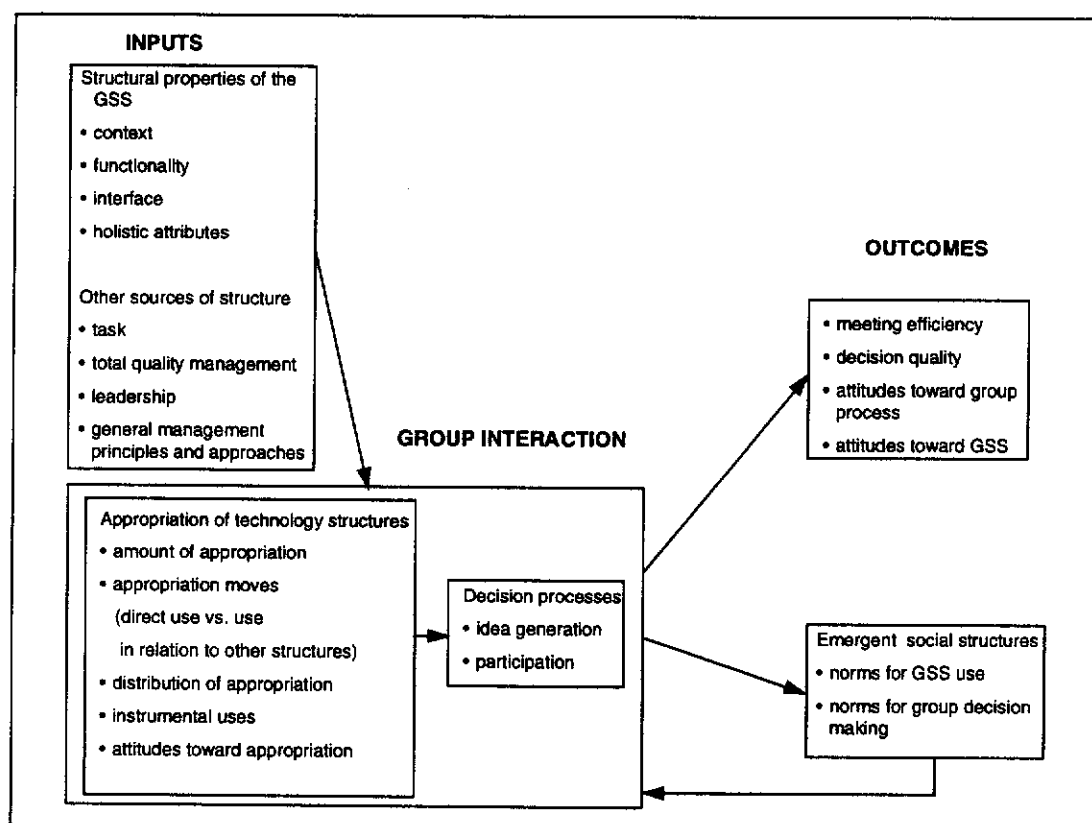


Figure 2.4 Model of team use of a GSS based on adaptive structuration theory (DeSanctis, Poole, Dickson & Jackson, 1993, p. 10)

The confusion is evident in the analysis. For example team two's *attitudes toward appropriation* are described as, "ranged from neutral to high, with no open resistance toward use of the technology" and their *attitudes as outcomes* are described as "a 'happy' group of people; morale was generally (though not always high, and attitudes toward the technology and the meeting process and outcomes were quite high during our study" [referring to quantitative summary].

The reporting of time effect was limited to the following. One team had positive attitudes that decreased over time and another had negative attitudes that improved over time. Of particular note was, "members rarely complemented or criticized the

technology when using it; rather, they focused their sentiments on the topics at hand, treating the technology as a necessary mechanism for completing a task goal and nothing more." (p. 20). This observation may be a hint that researchers' preoccupation with technology per se is not shared by users who are more concerned about task achievement. Attitudes in another group varied from highly critical to very positive.

It is noted that the thrust of the report was the use of AST (previously described in the section "Adaptive Structuration Theory") to explain adoption of GSS, and hence the examination of attitudes or perceptions was a smaller part, in contrast to the primacy given to it in this dissertation. Additionally, the user driven philosophy of SAMM as opposed to facilitated, places the study in a different context to the facilitated meetings of this study. DeSanctis et al. (p. 27) noted that help from facilitators and technicians "might have encouraged different appropriation patterns and outcomes in the team" and that "to ease technology adoption" they would be "providing more facilitation to teams early on in SAMM use".

Whilst the authors described the analysis as *interpretive*, this refers more to the context of the researchers interpreting the data according to Adaptive Structuration Theory, rather than the usage of the term *interpretivist*, as in this dissertation, to refer to the researcher's concern with the meaning that each actor or participant attaches to the GSS experience.

The major aspect of DeSanctis et al. (1993) that is relevant to this study, is the suggestion that the behaviour of leaders shapes the groups' use of, and attitudes to, the GSS. Based on this suggestion, it is expected in this dissertation study that facilitators will be important influences on participants' perceptions of the GSS activity.

2.4.11. Barent, Krcmar, Lewe and Schwabe (1995)

Barent, Krcmar, Lewe and Schwabe (1995) undertook a two year study into the use of GSS to support the task of continuous improvement (CI). In contrast to previous studies, the authors described the approach as ethnographic rather than a case study.

The case study tries to define specific questions ahead of time and carry out fieldwork in a targeted fashion whereas the ethnographic approach seeks to gain a detailed picture of the real world and encourages fieldwork to continue for long periods of time in an unstructured manner (Yin, 1989). (p. 201)

A group of 10-14 people used a GSS facility (the Hohnheim Computer Aided Team room) on four occasions total, at a frequency of once every six months, over two years. In contrast to the external facilitation mode used at Curtin University, Perth, the study had the manager of the team facilitating, supported by an external technical facilitator. The extent of the manager's process involvement is captured in descriptions such as:

- "There was no preparatory discussion between the facilitator and the manager."
- "No discussions with the facilitator took place [on] how to use GroupSystems in an appropriate way."
- "the manager derived tasks and distributed them among the team"
- "the manger decided to perform the next meeting with computer support, too"
- "the manager initiated an EBS [Electronic Brainstorming Session] on the question"
- "The facilitator handled the system and the manager the discussion"

Data sources for the study included observations by researchers²², interviews with participants, GSS generated statistics, and documentation associated with the meetings. The filtering of the data was based on "one or two aspects that struck the observers as most interesting" (p. 200). These aspects were anonymity, voting, managerial issues, effects of the continuous improvement (CI) process, and learning how to run CI meetings.

²² Although not explicit in the paper, it appears that the researchers were outsiders rather than insiders (group members).

Whilst the authors do not explicitly state a research question, the focus of the study appeared to be orientated toward the task, and the process support for the task. "The group went through an interesting learning process, both in improving their work and in appropriating GSS tools" (p. 200). The findings were framed as key factors for successful CI meetings (see Table 2.4).

Table 2.4 Lessons learnt about continuous improvement (CI) meetings (Barent et al., 1995, p. 208)

Anonymity	The role of anonymity changes over [the] time of the group development process.
Voting	Use computerised voting for fast decisions on measures, if not political. Even with computerised voting, limit the number of decisions.
Managerial issues	Take into account that the manager is the target of personal offences. He loses [sic] control in electronic communications but by anonymity gets better insights into the group's status.
Organizational change	CI meetings initiate and must be accompanied by organizational change. CI must be a planned and repeated action in an organizational change process.

Unlike the study in this dissertation, the authors were not explicitly concerned with "How participant perceptions changed over time". Nevertheless, there are some relevant temporal observations in the paper:

- "After the third meeting most participants were already familiar with GroupSystems. CI meeting participants were in better shape to make good use of the system..." (p. 209)
- "The group went through a learning process how to adapt the anonymity feature to their needs." (p. 202)

The first observation was not elaborated upon, however, it was noted that the fourth meeting was the most sophisticated in terms of the GroupSystems tools that were used. The second point included the observation that the group noted how to provide

identified input (via initials), and they learnt that anonymity was partial rather than perfect.

There are numerous differences between the Barent et al. study and the one undertaken in this dissertation. The paper gives the impression that observation and associated case descriptions, rather than interviewing, were the primary data sources. Additionally, there was considerable learning associated with process facilitation and the CI task, as the client group manager, rather than an external process expert, undertook the facilitation. However, the underlying rationale is similar:

Qualitative studies of Group Support Systems (GSS) use in natural settings are needed to capture the richness of group interaction with technology. (p. 200)

The four field studies with a longitudinal aspect are summarised in Table 2.5.

Table 2.5 Summary of GSS *field* studies with a longitudinal aspect

	Garcia et al. 1989	Dennis 1991	DeSanctis et al. 1993	Barent et al. 1995
Foci	perceived effects of GSS on planning process, quality of plan, impact on work group relations, adaptive design for GSS application	team use of GSS	show how AST explains pattern of GSS adoption in teams	continuous improvement process supported by GSS
Relevant Findings	satisfaction with outcomes, productivity of planning session, and effectiveness of group higher in first year than second year; work group relations unchanged; equality greatest in first session, leader emerged in third session; novelty effects?, context effects?	perceptions increased in favour from the first meeting	marked differences in teams usage, leader's behaviour as a possible explanation	familiarity with GSS noted after three sessions; learning about anonymity; voting included political behaviour; manager (process leader) needed to understand technology usage and group dynamics; CI meetings shape and are shaped by organizational change
Facilitation	active process facilitator and technical facilitator	some technical facilitation only	users facilitated themselves	manager was process facilitator supported by external technical facilitator
Meetings	3	5, 4 and 2	6, 6 and 10	6
Training	not stated	not stated	not stated	not stated
Duration	not stated	90-120, 45-90, 60-90 mins	2, 1-2 and 1 hour	3, 2, 1, 1: 3: few hours
Time between meetings	12 months	1, 1-2, 6 week/s	1, 3 and 1 week/s	6 months
Elapsed time	3 years	7 weeks	8 months	2 years
Group size	13, 10, 12	2-6, 3-4,	14, 8, 7	10-14
Number of groups	1	3	3	1
Group composition	same organisation, (university) unknown levels	directors, managers, supervisors in each team, same organisation (hospital), different departments	high level, medium level, low level, each team from same organisation (IT department)	research group with a manager
Group History	not stated	not stated	not stated	not stated
Tasks	annual planning	improve customer satisfaction	planning, idea generation, solution identification	continuous improvement-ideas for group improvement, evaluation of fulfilment, review of goals, generate tasks for improving work situation
GSS software	MeetingWorks	GroupSystems	SAMM	GroupSystems
Instruments	planning process (developed for study); work group relations (Cammann et al. (1983))	questionnaire developed for study	Green & Taber (1980) Gouran et al. (1978), Sambamurthy (1989)	questionnaire Lewin (1994)
Data sources	questionnaires, planning output documentation, session scripts, researcher as action researcher	interviews, observation, system logs, questionnaires	questionnaires, interviews, observations, protocols of videotape	observation, interviews, questionnaire, documentation, system statistics
Constructs	ease of GSS use, use of computer, process satisfaction, outcome satisfaction, productivity of session, efficiency of group, effectiveness of group, future use, quality of plan, equality of voice, emergent leadership	[<i>measured over time in italics</i>] attitudes toward computers, <i>team cohesiveness</i> , <i>participation</i> , <i>satisfaction with process</i> , <i>perceived effectiveness</i> , quality of projects, GSS features	(see Figure 2.4) <i>attitudes toward group process</i> (systematic, sense of accomplishment, openness of communication) <i>attitudes toward technology</i> (impact on work, comfort) <i>appropriation of technology</i> (amount, modes, distribution, instrumental use, attitudes) <i>decision processes</i> (idea generation, participation) <i>outcomes</i> (meeting efficiency, decision quality, attitudes toward group process, attitudes toward technology)	anonymity, voting, managerial issues, organizational change, learning how to perform CI meetings

Prior to summarising the focussed literature review of empirical GSS research with a longitudinal aspect, support for a human centred approach to IS research is reviewed.

2.5. Human centred IS Research

Nissen (1985) provides an argument for human centred information systems research. His argument is based on considering the emancipatory function of knowledge and the assertion that information systems knowledge is not based solely on knowledge from the natural sciences. Nissen seeks to include all actors, not just those in a "closed community of scientists" (p. 45) in benefiting from information systems research knowledge, and thus avoiding a "technocratic society" (p. 46).

In arguing for the pursuit of knowledge that has all actors in mind, Nissen argues for a shift from methods of the natural sciences to those methods from hermeneutics (a theory and method of interpreting human action and artefacts), and the methods of the Geisteswissenschaften (Humanities).

The research in this dissertation follows Nissen's use of primary data as being "the concepts employed by the actors in the fields of study". Nissen further describes these concepts (perceptions):

These concepts will cover both their [the actors] work and life situations, how they make sense of these and of their actions as well as of the actions of others. These conceptualizations will, in a sense, be subjective. In another sense they will be intersubjectively shared. This is largely due to the use of language for interaction in social reality. (p. 47)

Further justification for the human centred approach in this dissertation can be found in the socio-technical systems literature. Socio-technical research and design has a history including early studies in the coal mining industry of northern England in the 1950s (Trist & Bamforth, 1951) and development at the Tavistock Institute of Human Relations during the 60s and 70s. It is based on the assertions described by Herbst (1974):

if the technical system is optimized at the expense of the social system, the results achieved will be sub-optimal. The same would be true if the social

system were optimized at the expense of the technological system. The aim to be achieved would need to be the joint optimization of the technical and the social systems (p. 4)

Herbst goes on to point out that we now have many technically and economically feasible alternatives to choose from and the critical aspect is that the technology chosen is "consistent with and supports the direction established for social and organisational change." (p. 8)

Face-to-face meetings supported by GSS technology are very much socio-technical systems. If they are to be used, it is important that the degree of congruence between social and organisational objectives and the technical support is researched and understood. This demands an understanding of problem stakeholders' perceptions of the GSS context.

2.6. Summary

The literature review of longitudinal GSS research reveals several aspects.

- Students as subjects undertaking constructed tasks or cases is common.
- Quantitative measurement via Likert scales is common.
- Use of pre-existing instruments (questionnaires) is favoured by some researchers, even though some instruments were originally constructed for different contexts.²³
- Quantitative analysis, including averaging of participant' responses is common.
- Whilst quantitative analysis is pervasive, several studies include researcher interpretations from observation, interviews and participant debriefings, although the participant viewpoint and meaning is not stressed, and no reference to interpretivist research is made.
- The term "longitudinal" is used to describe studies that have subjects undertaking repeated GSS usage (2-8 times in student subject studies and 3-32 times in field studies). This usage has taken place over a few weeks, several months, and a few years.
- The terms perceptions and attitudes are used loosely, referring in some studies to any self report measures (Zigurs et al., 1991), and in others to attitudes toward technology (Gopal et al., 1992-93).
- Studies indicate that perceptions change over time and there are hints of novelty effects and adaptation to the new technology and processes.
- Generalisations or building cumulative knowledge is difficult as each study is quite different.
 - SAMM studies have user driven facilitation whereas other studies use external facilitation teams.
 - Student subject studies employ scripted facilitation.
 - Some research designs are aimed at comparing GSS to manual.
 - Some studies use AST as a guiding perspective.
 - Different aspects including cohesion, conflict, group discussion, participation, leadership, process and outcomes are studied.
 - Different studies use different instruments or where similar instruments are used, different *factors* are constructed.

²³ For example, the Gouran et al. (1978) instrument was formed to evaluate group *discussion*, rather than the interaction at GSS meetings.

All of the research reviewed in this chapter stresses the need for more longitudinal research examining GSS experience over time, rather than single occasion use. The manner of study in the past, however, has been predominantly *positivist* in nature. The next two chapters justify an alternative approach to the study of longitudinal use of GSS, in empathy with Nissen's (1985) call for human centred information systems research.

Chapter 3. Research Paradigm, Strategies and Method

3.1. Introduction

When entering the field of research, the researcher is confronted with abstract concepts including paradigm, strategy, approach, methodology, and method. Whilst writers seek to simplify such concepts in short definitions, each invariably applies his or her own interpretation. While there is some broad commonality, individualistic viewpoints abound dependent on the author's context. The field of research is thus riddled with multiple viewpoints, for example, Burrell and Morgan (1979), Galliers (1985), and Denzin and Lincoln (1994). Authors broadly agree that paradigm is a more abstract concept than strategy, approach, methodology and method. Thus most would view "grounded theory" (Glaser & Strauss, 1967) as more like a strategy, approach, methodology or method and not a "paradigm". The distinctions between strategy, approach, methodology, and method are somewhat blurred, particularly because of the varied, overlapping use of the terms. The commonality amongst authors is a hierarchical use of concepts from more theoretical to more practical.

It is not appropriate within this dissertation to treat these concepts to the extent that they would be treated in a treatise on the philosophy of science. The author here will follow the convention of Denzin and Lincoln (1994) using the terms paradigm, strategy and method. These are to be thought of hierarchically from theoretical to more practical. Examples of each are provided in Table 3.1. A paradigm (e.g. interpretivism) is a world view, within which a community of researchers thinks and behaves. It includes fundamental beliefs about the nature of the world, the nature of knowledge, the relationship between researcher and the researched, and the nature of inquiry. A research strategy (e.g. grounded theory (Glaser & Strauss, 1967)) is a more specific perspective, providing more detail on the conduct of research, but still with a description of major assumptions and the logic of the inquiry.¹ A method (e.g. interviewing) is a practical means of data collection. Even at this specific level of the research process - data collection - the process is influenced by the fundamental

¹ It is possible that a research strategy could be implemented under different paradigms. The case study, for example, could be implemented under either interpretivist or positivist world views.

paradigmatic beliefs. Thus interviewing and associated analysis can be carried out in radically different ways, producing quite different knowledge claims.

The nature of research requires considerable description in order to avoid superficial understanding. Various authors choose to use or avoid terms like qualitative and quantitative because they mean many things to different people. Whilst the author prefers not to emphasise them, the terms are, however, easily recognisable and thus demand some description. Denzin and Lincoln (1994) state:

Qualitative research is many things to many people. Its essence is twofold: a commitment to some version of the naturalistic, interpretive approach to its subject matter, and an ongoing critique of the politics and methods of positivism. (p. 4)

Furthermore, the authors state:

The word qualitative implies an emphasis on processes and meanings that are not rigorously examined, or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry. Such researchers emphasize the value-laden nature of inquiry. They seek answers to questions that stress how social experience is created and given meaning. In contrast, quantitative studies emphasize the measurement and analysis of causal relationships between variables, not processes. Inquiry is purported to be within a value-free framework. (p. 4)

Denzin and Lincoln (1994, pp. 11-15) describe five phases that define qualitative research. These phases (see Table 3.1) include; (1) the researcher, (2) the paradigm, (3) the research strategies, (4) the methods of collection and analysis, and (5) the interpretation and presentation. The first phase is dealt with in Chapter Four Section 4.7 "Researcher's perspective". The last phase is dealt with in Chapter Four Section 4.8 "Truth and Trustworthiness". The intervening phases are the topic of discussion here.

Table 3.1 The research process (adapted from Denzin & Lincoln, 1994, p. 12)

Phase 1: The Researcher as a Multicultural Subject
history and research traditions
conceptions of self and the other
ethics and politics of research
Phase 2: Theoretical Paradigms and Perspectives:
positivism, postpositivism
interpretivism (constructivism)
feminism(s)
ethnic models
Marxist models
cultural studies models
Phase 3: Research Strategies
study design
case study
ethnography, participant observation
grounded theory
biographical method
historical method
action and applied research
clinical research
Phase 4: Methods of Collection and Analysis
interviewing
observing
artefacts, documents, and records
visual methods
personal experience methods
data management methods
computer-assisted analysis
textual analysis
Phase 5: The Art of Interpretation and Presentation
criteria for judging adequacy
the art and politics of interpretation
writing as interpretation
policy analysis
evaluation traditions

Within this study the researcher has chosen an interpretivist (constructivist) paradigm (Guba, 1990; Schwandt, 1994). The research strategy has been inspired by grounded theory (Glaser & Strauss, 1967), but does not follow the analytic detail of grounded theory (Strauss & Corbin, 1990). The research strategy is consistent with the principles of phenomenology and symbolic interactionism. The methods of data

collection and analysis are principally interviewing and interpretivist text analysis (Lacity & Janson, 1994).

The rationale for the choice of paradigm, research strategy and methods of data collection and analysis is provided below.

3.2. Choice of Paradigm

A paradigm is a world view. It is a system of assumptions about the world and methods for inquiry. These assumptions cannot be proven in an empirical, logical or ethical sense. They are fundamental. The assumptions represent a framework within which a community of researchers can work. (Kuhn, 1970; 1973)

3.2.1. Alternative Paradigms

Guba (1990) describes four paradigms (basic beliefs) in which inquiry or research can be carried out. These are described as positivism, postpositivism, critical theory and constructivism. Although the term interpretivism is not used, Greene (1990) in an article associated with the same book, "The paradigm dialog", uses "the more generic term interpretivism" (p. 245) to include constructivism as described by Guba. Schwandt (1994) also notes the similarities of constructivism and interpretivism. Given the similarities and the use of the term "interpretivism" in IS research methods (and lack of use of constructivism), interpretivism will be the preferred convention in this study.

An inquirer or researcher within each paradigm makes assumptions about the nature of things (ontology), the nature of knowledge (epistemology) and the nature of the logic of the methods of research (methodology) (Burrell & Morgan, 1979). Paradigms are often contrasted with a "dominant" or "conventional" paradigm. The positivist paradigm has been a common paradigm for physics, chemistry and biology and features prominently in IS research. (Hirschheim, 1985) The interpretivist paradigm is less common in IS research but is enjoying greater debate and application as dialogue in IS research has begun to deal with issues of competing paradigms. (Hirschheim, 1985; Baroudi & Orlikowski, 1991; Galliers, 1985)

Whilst the background of Guba is within education rather than IS, his long engagement with paradigmatic issues, and clear, extensive and contemporary writings provide a useful guide.

Note that the adoption of a sociological perspective on GSS, (in turn seen as part of IS) is in keeping with the thrust of Hirschheim (1985, p. 13), "IS epistemology draws heavily from the social sciences because information systems are, fundamentally, social rather than technical systems".

Basic assumptions of positivism and interpretivism are described in Table 3.2.

Table 3.2 Basic assumptions of interpretivism and positivism (adapted from Guba, 1990, p. 20, 27)

Interpretivism

Ontology: Relativist - realities exist in the form of multiple mental constructions, socially and experientially based, local and specific, dependent for their form and content on the persons who hold them.

Epistemology: Subjectivist - inquirer and inquired are fused into a single (monistic) entity. Findings are literally the creation of the process of interaction between the two.

Methodology: Hermeneutic, dialectic - individual constructions are elicited and refined hermeneutically, and compared and contrasted dialectically, with the aim of generating one (or a few) constructions on which there is substantial consensus.

Positivism

Ontology: Realist - reality exists "out there" and is driven by immutable natural laws and mechanisms. Knowledge of these entities, laws, and mechanisms is conventionally summarized in the form of time- and context-free generalizations. Some of these latter generalizations take the form of cause-effect laws.

Epistemology: Dualist/objectivist - it is both possible and essential for the inquirer to adopt a distant, non-interactive posture. Values and other biasing and confounding factors are thereby automatically excluded from influencing the outcomes.

Methodology: Experimental/manipulative - questions and/or hypotheses are stated in advance in propositional form and subjected to empirical tests (verification/falsification) under carefully controlled conditions.

Whilst one can argue over the merits of different paradigms no one can deny that a researcher operating in a given paradigm makes the assumptions associated with that paradigm. The onus on the researcher is to satisfy a critical audience that the assumptions made are appropriate to the purpose of the study and the nature of the research questions.

It is the researcher's assertion in this study, concerned with the question of how perceptions change over time, that humans involved in GSS have the capacity to interpret and construct their own possibly unique views of GSS sessions. In order to understand these interpretations it is necessary to allow the participants to describe their interpretations in their own words. It is also necessary to consider the context associated with each perspective. The process of discovery involves interaction (via interviewing and observation) between the subjects and the researcher. Each elicitation (transcript) is to be compared and contrasted with others, with the aim of generating a construction on which there is substantial consensus between participants.

This is the basis of an interpretivist inquiry and these ontological, epistemological and methodological assumptions form the beliefs under which this study is conducted.

The aspect of eliciting actor's interpretations "in their own words" contrasts sharply with positivist studies that involve survey and experiments, and employ quantitative methods that are operationalised as rating scales. Such rating scales usually consist of a five or seven point scale (Thurstone & Chave, 1929; Likert, 1932). The scales are usually rated by the respondents. Significantly, the scales relate to constructs chosen by the *researcher*. Thus the researcher has adopted a verification (falsification) posture rather than a discovery (generative) posture as noted in the methodology contrast in Table 3.2.

Within a verification/falsification posture there is no attempt to deal with the possibility that the respondent is reconstructing the given construct and responding to it based on the meaning that it has for that respondent in that context. Thus it is assumed that the given construct has a commonly understood meaning shared by researcher and respondent. This meaning is assumed to be the same for all respondents and in all situations in which they are asked to respond to the construct. This aspect reflects the ontological difference between positivism and interpretivism.

Positivism assumes that there is one reality, and there is one objective meaning, that is time and context free.

Representation of phenomena as context independent, quantitative measurements is usually assumed in positivist studies and then aggregation, averaging, examination of variance and statistical significance is used in conjunction with either experimental design or survey statistical sampling to test a priori determined hypotheses. The aggregation and examination of variance proceeds under the assumption that all the respondents acted toward the original construct based on a common shared meaning and that the researcher knows that same meaning.

It is the recognition of the ability of humans to reconstruct reality in every situation and then act based on the meaning that "things" have for them, that separates interpretivist from positivist inquiries. Each human is recognised as possessing intelligence, will and motivation. Davies (1991) refers to Nissen's argument that positivist inquiry "makes impotent the possibility of innovative human action" (p. 145) and generates the view of information systems as controlling rather than supporting actors. Interpretivist inquiry recognises that each human has the ability to interpret given stimuli in different ways at different times and thus act in different ways. This capacity to reconstruct reality is fundamentally different to the capacity of objects, say water or steel, to act upon stimuli or actively construct a reality. The world has meaning for humans in contrast to the molecules, electrons and atoms that inhabit it. (Schutz, 1967)

In adopting a realist ontology (reality exists "out there" and there is one reality), the positivists also adopt a posture of "speaking to nature" and allowing it to answer back. To prevent the values of the researcher biasing the outcome, positivists adopt the "distant, non-interactive posture" (Table 3.2) and may resort to instruments to capture the reality. Whilst this may be appropriate in the natural sciences where the objects don't construct their reality, it is problematic to deny researcher' values in human inquiry. At the very least one might expect the researcher's values to influence the construction of the research instruments and interpretation during observation. The human subjects' values are also likely to influence their responses or constructions of experience.

With the above considerations in mind it is the researcher's contention that an interpretivist belief system is appropriate to the context of this study, which is primarily concerned with *human* inquiry.

3.3. Choice of Research Strategy

The following discussion uses Table 3.1 as a framework for describing the choice of research strategy within the interpretivist paradigm. Although Galliers (1985) provides a framework for IS research, his treatment of "qualitative" strategies is restricted to case study, action research, and a brief treatment of phenomenology/hermeneutics. Hence the more comprehensive list of eight research strategies given in Table 3.1 is used. Each strategy is considered below as a contender for the study of participant perceptions.

The *study design* is described in detail in Chapter Four "Research Design". This represents the paradigm, research strategy and methods in operation. Briefly the design consisted of intensive semi-structured interviewing of participants who had been involved in GSS sessions. The interviews took place shortly after each session. Seven participants were interviewed on each of six occasions in a longitudinal design. Interviews were transcribed and subjected to text analysis in order to arrive at findings directed at the research question of how participant' perceptions of the GSS experience changed over time. The design was sympathetic to the principles of grounded theory, phenomenology and symbolic interactionism.

The attraction of *grounded theory* (Glaser & Strauss, 1967) was its attributes of emergence of theory from data, and the subservience of theory to data. An established theory or model was not employed. The researcher felt that both the nature of past longitudinal studies (predominantly positivist) and the paucity of longitudinal studies meant that understanding in the area was not well developed, hence it was inappropriate to assume a theory or a model. Rather it was appropriate to build understanding.

The complete arsenal of grounded theory method was not employed as it was felt the short and intense data collection of the GSS environment was not suited to the interactive data-theory analysis that is possible in the environments (often clinical), that have been the subject of complete grounded theory studies. In clinical environments, researchers often have continuous or at least prolonged access to the field and hence can collect data, analyse the data, and then ask theoretically informed questions. The coding method of grounded theory was not employed. Rather rich description with extensive quoting of participant's speech was used during analysis. The rationale was that the type of coding used in grounded theory abstracted and hence risked a loss of context and meaning.

The objective of the study was to identify change over time and this required attention to emerging details of meaning. Constant comparative analysis was employed given that there were both longitudinal comparisons (comparisons between first, second, third etc. sessions), and cross-sectional comparisons (comparisons across participants for the same session) to be made, in order to identify any emerging changes. In addition to grounded theory, a number of other research strategies given in Table 3.1 were considered.

Action research (Lewin, 1951; Peters & Robinson, 1984) was a contender for choice of strategy. Action research assumes active involvement and intervention of the researcher in a social or organizational setting to bring about mutually agreed goals, whilst studying the intervention. The opportunity did exist in this study for the researcher to play the role of facilitator. However, preliminary field work (see Chapter Four Section 4.3) convinced the researcher that role overload would inhibit the intensity of data collection required. Additionally, playing the role of facilitator and then collecting data from participants on the facilitator's role posed problems of bias in the sense that participants could be less likely to be critical, out of politeness, or seek to manipulate the situation, for example, concentrating on pursuing their personal agenda whilst they had personal access to the facilitator. Thus the researcher chose to play a less critical role in the GSS activity through not acting as facilitator.

The *case study* (Yin, 1984; 1989) also offered a perspective that was appealing in some ways to the research. The case study is usually described as studying a particular context or case in a natural situation. This study did have the attributes of being a group from a particular organisation undergoing a task. Thus it could be viewed as a case study of a single group or organisation subset. However, the units of study or analysis were individuals within the group and additionally they were to be studied over time. Thus from a case study perspective it could be thought of as a seven participants by six time periods, design. Case study research is a very broad area often undertaken under positivist paradigmatic assumptions (Myers, 1994). The researcher chose not to use the language of case study research so as not to confuse readers, particularly those in the IS research tradition who may implicitly associate case study with positivist paradigmatic assumptions.

The perspective of *ethnography* (Malinowski, 1926) is usually characterised by attempting to understand culture from an outside perspective through participating as

an "insider". Thus *participant observation* is a preferred form of involvement. This is where the researcher participates as a member of the culture they are attempting to understand. Involvement is usually for prolonged periods. Uncovering culture was not a primary objective of this study hence ethnography and participant observation were not employed as primary research strategies. The researcher did, however, observe sessions so as to be informed of the context of the GSS sessions when later interviewing participants about the experience.

The *biographical method* (Smith, 1994) focuses on writing about "lives". Whilst it is true that all written works including this one are biographical (even autobiographical) in nature, the objective of this research was not to write about the lives of the participants per se but rather see how their perceptions of a phenomenon, the GSS activity, changed over time. In some small way, the descriptions of each of the participants, based on initial interviews, represent mini-biographies, but these were to provide the reader with a richer sense of context, rather than a portrayal of the participants' lives.

Historical methods or *historical research* (Tuchman, 1994) argues for studying the historical context of phenomena in order to gain understanding. Whilst this might be a worthy extension to the study in this dissertation, the focus was on the current and longitudinal experience of what was, in some sense, a new phenomenon for the participants. There was some limited gathering of historical data during pre-GSS interviews. Future studies could extend the temporal aspect into the past to gain greater insight.

Clinical research (Miller & Crabtree, 1994) is principally concerned with an environment of diagnosis, treatment, patient and clinical practitioner, as in the health environment. Whilst it would be possible to fit these concepts into the consultant-client environment of GSS, this would seem somewhat inappropriate given the business and organisational context of GSS activity. Thus the clinical research perspective was not a contender for this study.

Phenomenology (Husserl, 1913) is a philosophical approach. The term is also used to describe the investigation of how things are experienced. Husserl describes a process of stripping away actors' perceptions (*bracketing*) in order to reveal the "essence" of a phenomenon. Schutz (1967) appropriated Husserl's ideas into studying the make up of everyday social knowledge, however, his focus was on the *life world* "bracketed" in Husserl's approach. This life world consisted of knowledge

shared by actors and interpretive schemes by which actors undertook everyday action. (Jary & Jary, 1991)

This study is about how a "thing", in this case the GSS activity, is experienced by a set of participants. Thus in the broad sense of the term, this study is phenomenological. The focus on perceptions rather than the "essence" puts the study more in line with Schutz's social phenomenology than with Husserl's phenomenology. The use of intensive interviewing and text analysis gives some insight into the knowledge shared by actors and interpretive schemes employed by the actors, in the context of the GSS experience. It also allows actors to construct reflective meaning. Consistent with this study, Morse (1994, p. 225) describes phenomenological studies as focussing on "meaning", utilizing "in-depth conversations", and producing "in-depth reflective description of the experience".

Galliers (1985) expanded traditional IS research methods to include phenomenological studies/hermeneutics, referring to Boland (1985). The association of hermeneutics (Heidegger, 1962; Gadamer, 1989) with phenomenology, is logical given that the latter's concern with the "essence of experience" must also concern itself with issues of interpretation, the domain of the former. Lacity and Janson (1994) note that hermeneutics requires (1) immersion in a text via iterative reading and interpreting, and (2) cross comparison of texts. The latter is illustrated via a study on users' resistance to a university system where different stakeholders' interview transcripts were used to interpret themes identified in a particular interview transcript. This dissertation study similarly employs both iterative reading, and cross comparison to facilitate interpretations.

The perspective of *symbolic interactionism* (Blumer, 1969; Mead, 1934; Cooley, 1909; Becker, 1970) is based on the belief that social reality is constructed by people (actors) each time they interact. These constructions are possible because humans use symbolic communication, including language and gestures, to abstract reality and thus create their own versions of reality. Actors act and interact based on the meanings that things have for them. Meanings emerge from social processes and do not exist within an object. There is an emphasis on the interpretive and constructive abilities of actors rather than the determinism of social structures. (Levin, 1988; Jary & Jary, 1991)

In order to understand actors' constructions, symbolic interactionists employ research methods that help them get close to the actor's point of view. These methods include observation and intensive interviewing. (Levin, 1988; Jary & Jary, 1991)

The approach of symbolic interactionism is thus consistent with the focus of this study, being on participant' perceptions of the GSS activity. The emphasis is on each person's construction or interpretation of that experience. In order to understand these constructions, the researcher is undertaking intensive interviewing to allow the participants to create their version of the experience in their own language. By interactive questioning, the researcher is seeking to understand the meanings that a given participant attached to the experience.

Symbolic interactionism, like other interpretive approaches, does not hold to the belief of the existence of universal laws as in the physical sciences or in the application of positivism within the social sciences. However, it is believed that explanations are possible within a limited context. (Jary & Jary, 1991)

Ethnomethodology (Garfinkel, 1956; 1967) explores the constructive competence of individuals in greater depth than symbolic interactionism. Ethnomethodology focuses on the methods (*members' methods*) by which members of social groups undertake social life. These methods, social competence, or tacit knowledge which people employ in their social life, can include so called "taken for granted assumptions" such as organised turn taking in conversation, or the recognition of property ownership. (Jary & Jary, 1991)

The objective of this study was not to uncover the ways in which members of the group undertook their social interaction, rather the objective was to uncover participants' perceptions of the GSS activity, particularly the changes over time. Thus a deep examination of actors' social competence was not warranted.

Thus, of the numerous competing perspectives described above, the perspectives of grounded theory, phenomenology, hermeneutics and symbolic interactionism, appear most suitable to the research question of how perceptions of GSS activity change over time. Having chosen the interpretivist paradigm and the broad research strategy, the most specific phase of Denzin and Lincoln's description of research process (Table 3.1) - the choice of methods of data collection and analysis - is described in the next section.

3.4. Choice of Method of Data Collection and Analysis

Schwandt (1994) puts method into perspective within interpretivist research:

The aim of attending carefully to the details, complexity, and situated meanings of the everyday life world can be achieved through a variety of methods. Although we may feel professionally compelled to use a special language for these procedures (e.g., participant observation, informant interviewing, archival research), at base all interpretive inquirers watch, listen, ask, record, and examine. (p. 119)

The major method of data collection was interviewing. Interviewing had the strength of allowing participants to describe "in their own words" the nature of the GSS experience from their individual perspective. A large amount of data can be collected in a short time via interviewing. The interview also offered the opportunity for interaction between researcher and interviewee so that "on the spot" clarification of meaning could be sought. Tape recording of the interviews freed the researcher from making notes during the interview, and thus allowed the researcher to concentrate on the dialogue.

Observation was used as a secondary, rather than primary, data collection source. The problem of using observation solely, was that the researcher's point of view would be privileged and the participant's perspective ignored. This was contrary to the objective of the study, which was to study individual participant perceptions. It was, however, felt that observation of sessions which the participants were later to speak about, would add to both the conduct of the interviews and aid later interpretation of interview transcripts.

Lacity and Janson (1994) observed that "text analysis" (the analysis of words, either spoken or written) can take place within positivist, linguistic and interpretivist paradigms. The latter was adopted within this study. The following aspects were consistent with Lacity and Janson's framework (Table 3.3) for interpretivist text analysis. Through the interviewing process the researcher adopted a close or "insider" relationship to the speaker. A degree of background information on the experiences of interviewees was collected in initial interviews. Interviews were conducted in the interviewees' work place, giving the researcher a feel for their work environment. The researcher's biases were made explicit as far as possible (see

Chapter Four Section 4.7 "Researcher's perspective"). The text (transcript) was assumed to be subjective. The validity or trustworthiness checks were both quantitative and qualitative. The accuracy of the transcription, from audio to written text, was assessed via two independent auditors, and a numerical accuracy measure was used. The preliminary coding was similarly assessed. In the course of the interviews, the researcher checked participant meaning via reflecting back to the participants the messages that the researcher was receiving. Further trustworthiness checks, including rich description, and triangulation, are described in Chapter Four Section 4.8 "Truth and Trustworthiness".

Table 3.3 Text analysis framework (Lacity & Janson, 1994, p. 140)

Text analysis approaches	Assumptions				
	Research Method	Nature of text	Role of researcher	Validity checks	Examples
Positivist	Identification of non-random variation	Objective	Outsider	Quantitative	<ul style="list-style-type: none"> • Content analysis² • Verbal protocol analysis • Script analysis
Linguistic	Study language - reality relationship	Emergent	Outsider	Primarily qualitative	<ul style="list-style-type: none"> • Speech act analysis • Discourse analysis
Interpretivist	Analyse the cultural influences of the writer or speaker and the interpreter	Subjective	Insider	Qualitative	<ul style="list-style-type: none"> • Hermeneutics • Intentional analysis

² Lacity and Janson place content analysis in the positivist domain. This is reasonable if referring to coding based on the *manifest* content of text. Typical analysis would involve counting the frequencies with which particular words occur, and possibly undertaking statistical analysis. If, however, coding is based on the *latent* content, that is, orientated towards the underlying meaning of pieces of the text, then the content analysis is within the interpretivist paradigm.

Having recorded interview transcripts, allowed the researcher to undertake text analysis and investigate meaning at leisure. Longitudinal comparisons (over sessions for a given participant) and cross-sectional comparisons (between participants for a given session) allowed meaning to emerge. The former comparison was consistent with the objective of the study, to examine how participant perceptions changed over time. The comparative analysis was consistent with the constant-comparative method of grounded theory, which essentially compares each "incident" (a piece of meaning) with every other incident to determine similarity and difference. Some content coding was carried out, and computer assisted retrievals of associated text using the software, Nudist (Richards & Richards, 1993), enabled the longitudinal and cross-sectional text analysis.

In particular, the interviews provided a questionnaire structure. Each question had a participant response associated with it. The first stage of analysis consisted of coding the common questions and responses in Nudist. For example, each participant was asked their overall impressions of the session. These responses were coded under "overall". All responses pertaining to overall impressions were then retrieved. These responses were organised by participant and session number. The researcher then read through the responses highlighting the key points that the participants made. A summary table classified by participant and session number was then constructed. This process was repeated for other questions such as those concerning "technology" or "facilitator". The summary tables appear in Chapter Six. These summaries were then examined for aspects that appeared widespread among participants and indicated changes over time. The reader is led through this process of examination in Chapter Six. The process forms the basis for the significant findings - those that appeared widespread among participants and important.

The artefacts, documents and records, of the study were included as supplementary materials to the interview transcripts. Again it was not legitimate that these should be the primary data source, given the research objective, being to uncover individual perceptions. However, the materials were useful for clarifying individual perceptions uncovered during interviews and analysis of the transcripts.

3.5. Summary

An interpretivist (constructivist) paradigm was chosen for the study, given the concern with participant perceptions and a desire to allow these to be told by the participants rather than assumed by the researcher. The research strategy was informed from grounded theory giving allegiance to the data rather than a priori models or theory. The study was phenomenological in the sense of treating the GSS activity as the phenomenon experienced by the participants. Informant interviewing and text analysis of interview transcripts were chosen as the primary data collection and analysis methods respectively. This was conducted consistent with principles of symbolic interactionism that posit that humans actively construct meaning at the level of symbols and act towards "things" based on the meaning those things have for them.

Whilst this chapter, has provided background and outlined the major choices associated with the research inquiry, the following chapter details the research design in the context of the field setting.

Chapter 4. Research Design

4.1. Introduction

This research was designed to investigate the research question:

How do perceptions of the GSS activity change for individual participants of a client group undergoing a series of GSS supported meetings over time?

The research design represents the move from conceptual to operational, the implementation of the paradigm and strategy (perspective) discussed in the previous chapter. In particular, the design demonstrates a coherence in the sense that assumptions made at the operational level are not in conflict with the methodological and paradigmatic assumptions.

Within this chapter the emphases of the methodology are discussed. The role of preliminary field work sessions in informing the design for the field work is covered. The field work section includes discussion of the unit of analysis, the choice of subjects, data collection (interviews, transcription, observation and documentation), field access and practical problems. Consistent with Denzin and Lincoln (1994) (see Table 3.1 "The research process"), the researcher's perspective, including history, politics, ethics, and conceptions of self and other, is discussed. Criteria concerning the quality of the research, appropriate to an interpretivist paradigm, are covered in the last section, which is entitled "Truth and trustworthiness". Table 4.1 provides a summary of the sequence of events associated with the research design including the major stages and activities.

Table 4.1 Research stages and activities (Adapted from Whiteley, 1987, pp 59-60)

Familiarisation

- Background reading in the GSS area
- Activities as facilitator, chauffeur and manager of GSS facility
- Activities as researcher in laboratory experiments and action research
- Background reading on research paradigm, strategies (perspectives) and method

Development of research questions

- Literature review

Choice of research paradigm, strategies (perspectives) and method

- Literature review

Preliminary field work

- School of Electrical and Computer Engineering sessions
- Lessons learnt to inform field work

Field Work

- Contact with client sponsor.
- Commitment to research contract
- Observation and recording of facilitator, client sponsor meeting
- Written research brief provided to sponsor and participants

Conduct of 5 GSS Sessions**Data Collection**

- Observation at sessions
- Videos taken as record
- Field notes taken during sessions
- Interviewing following sessions
- Seven participants personally interviewed after each GSS session.
- Informal interviews with chauffeur and facilitator when possible.

Analysis

- Transcription and text analysis of participant interviews.
- Trustworthiness checks conducted.

Conceptualisation of salient issues**Discussion**

- Developed discussion on salient issues.

Post analysis literature review**Conclusions**

- Drew conclusions

Completion

- Completed write up of dissertation

4.2. Methodology

4.2.1. Emphases

The emphases of the methodology are:

- Discovery and exploration rather than verification.
- Field setting rather than laboratory experimentation.
- Individual interpretations rather than measurement of a single, objective reality (subjective rather than objective).
- Longitudinal rather than single occasion.

Each of these emphases are discussed below.

Discovery and Exploration rather than Verification

Most of past GSS research has followed conventional hypothesis testing within a positivist paradigm. This involves taking a theory or model, stating some a priori hypotheses concerning the phenomenon of interest and then seeking statistical evidence in favour or against maintaining the null hypothesis in contrast to the rival hypothesis. This is a verification or testing approach.

In contrast, this study does not seek to constrain the phenomenon (perceptions of individuals of GSS meetings) by asking participants about predefined constructs. Rather it seeks to *discover* the constructs by which participants are making sense of the GSS meeting. This emphasis is in keeping with the grounded theory approach (Glaser & Strauss, 1967).

Constructs are initially emerged from examination of the data rather than using the data to test assumed existing theory. The strength of this approach lies in the likelihood of uncovering constructs that have not arisen (partly through choice of verification methods), in past research. Discovering constructs in GSS, is in keeping with Zigurs (1993, p. 117) where she suggests that there has been a narrowness of constructs studied. Additionally, a grounded approach in a particular setting, can confirm the presence or absence of, and elaborate upon, constructs that have previously been studied.

Bikson, in Turner's 1991 panel of information systems researchers discussing rigour and relevance, argues for a grounded theory approach in information systems research in general. Her argument is founded on her postulate that information systems has borrowed hypothetico-deductive paradigms from traditional science that "emphasize the logic of verification instead of the logic of discovery" (p. 720). Bikson argues that this has been to the detriment of the needs of a new discipline resulting in a "devaluing of descriptive, exploratory" (p. 721) work, and in turn a lack of "critical foundational work...that needs to be done before a field of science can become truly rigorous." (p. 721). Her conclusion is:

many of our rigour versus relevance problems are a consequence of our having appropriated paradigms that aren't suitable for information systems research, given the present state of development of the field. Rather than so much borrowed theory, we need more grounded theory approaches. (p. 724)

Fitzgerald, Hirschheim, Mumford, and Wood-Harper (1985) also argue that in a youthful discipline such as IS:

we should currently be generating ideas, theories and hypotheses, rather than simply testing them, and...anything which restricts or constrains this process is inappropriate. (p. 6)

Notwithstanding the general IS arguments, the additional and more specific issue facing this research design is that the research question, concerned as it is with perceptions, demands an emphasis on the social rather than the technical side of IS.

Field Setting rather than Laboratory Experimentation

Past GSS research has been dominated by laboratory experimentation (Zigurs, 1993; Pervan & Atkinson, 1995). A weakness of such research is the artificial nature of the setting, including the use of student subjects as surrogates for managers, and the use of artificial tasks as surrogates for real problems. Essentially student subjects are unlikely to be problem stakeholders in the same sense as an organisational group dealing with meaningful problems that affect the lives of group members in potentially significant ways.

The design of experimental studies in GSS usually ignores the existence of pre-GSS session negotiation between consultant facilitator and client, where problem definition and client expectations begin. The surrogate of students being coerced into participating in experiments would seem a poor substitute for these interactions. Additionally, facilitation roles are limited or non-existent, or if fulfilled, are played by non-professionals whose motivations and skills are quite different to a professional facilitation team with reputations and livelihoods at stake. Furthermore, scripting of facilitation roles, whilst ensuring experimental control, changes the active, flexible function of facilitation thus changing the nature of the GSS activity.

The above aspects reduce the transferability of findings from the laboratory context to the "real world" - an *external validity* problem that cannot be overcome through increasing sample sizes, improving measurement, or increasing experimental control.

Aside from the "artificial" aspects, at the paradigmatic level (see also Chapter Three) researchers undertaking laboratory experimentation and statistical analysis make the positivist assumptions of a single reality that it is to be uncovered by a detached observer (researcher). The constructive (interpretive) abilities of individual actors and researcher are ignored. This may be appropriate if the object of study is the quantity of ideas produced or the time taken to complete a task, however, the focus of the research in this study is participant perceptions.

A field setting is proposed for this study in order to overcome the transferability problems of studying artificial stakeholders, artificial tasks and artificial facilitation roles. This is in keeping with many calls from the GSS research literature for a greater emphasis on field work (Zigurs, 1993; Eden, 1992; Pinsonneault & Kraemer, 1989). Furthermore, a field setting is more appropriate to interpretivist inquiry. Actors' constructions of real world (field) settings are potentially more useful to participants, facilitators and other researchers, than actors' constructions of the artificial environment of the laboratory.

It is to be noted that this study did not take place in a totally natural environment as there was a research intervention, formalised in a research contract between the client and the researcher. The research function was thus overt rather than covert. However, the planning problem the participants dealt with, was of real concern in the sense of it affecting their daily lives for the foreseeable future. Additionally, a professional facilitation team with reputations at stake contracted with the client

group to provide a service. Thus the setting had the essential characteristics of a field study.

Individual Interpretations rather than Measurement of a Single, Objective Reality (Subjective rather than Objective)

Some studies focus on constructs that have strong inter-subjective agreement, that is, agreement among people (subjects), and thus are considered objective. Examples would be, time (the duration of the meeting in hours) or, the quantity of ideas generated.¹ Agreed means of measurement further objectify these constructs. In contrast, perceptions of individuals are (by nature) subjective in that they belong to individuals or subjects. To study such phenomena it would seem necessary to employ a methodology that gives emphasis to individuals constructing their realities rather than forcing constructs upon them. The practice of the interviewing techniques used (see the section on "Interviews") allows for an openness in individuals describing their perceptions of the GSS experience.

Longitudinal rather than Single Occasion

The argument for a longitudinal design was covered in the first chapter and is reiterated briefly here. Past longitudinal GSS research (e.g. Zigurs, DeSanctis & Billingsley, 1991; Chidambaram, Bostrom & Wynne, 1990-91; Gopal, Bostrom & Chin, 1992-93; Garcia, Lewis & Keleman, 1989; Dennis, 1991; DeSanctis, Poole, Dickson & Jackson, 1993; Barent, Krcmar, Lewé & Schwabe, 1995) has provided indicators that behaviours and perceptions change over time. Prior to GSS research, group development research (Forsyth, 1983), based on non-computer supported meetings, has provided empirical evidence of changes over time. Thus findings on behaviour and perceptions from single occasion settings may not describe, explain, or predict behaviour and perceptions after repeated GSS activity.

If GSS is to have much impact on group work then it would seem that it would need to be applied repeatedly by organisational groups, particularly given the ongoing nature of activities like planning, problem solving and decision making.

¹ Although even defining and counting an idea is open to subjective interpretation.

Longitudinal research is thus necessary to understand changes in behaviours and perceptions. Supporting this viewpoint, Vitalari (1985) advocates longitudinal designs in IS research generally because "most of the major information systems issues implicitly depend upon an understanding of change processes"(p. 254).

4.2.3. Summary

The methodology of the study emphasises discovery, takes place in a field setting, values individual subjects' constructions of their experience, and has a longitudinal design. With these design considerations in mind, a preliminary study was undertaken. The rationale of the preliminary study was to inform the field work with respect to the research method. The preliminary field work is described in the following section.

4.3. Preliminary Field Work

In the course of consulting work, the researcher sought opportunities to study GSS groups longitudinally. At this early stage of research, different research strategies were considered including the action research perspective. This perspective was appealing given that the researcher already operated as a consultant and could gain direct access to the field setting without having to rely on the goodwill of a facilitation team to allow access.

An opportunity arose when a University department contacted the Curtin GSS Facility with regard to undertaking a planning activity. A two person facilitation team, including the researcher as chauffeur, designed a process to progress the department's planning and also allow all of the department's staff to be involved. This design involved three groups, each undertaking three GSS sessions. At this early stage of the research, the researcher was trying different methods of data collection. One such method was the use of group interviews (Stewart, & Shamdasani, 1990). The attraction was that the group interviews could be held immediately following the GSS session and were thus efficient, given the greater resources required to interview individuals or convene group meetings at later times. The activities associated with the preliminary field work have been described in Atkinson (1992) and are referred to by Whiteley and Atkinson (1995).

The preliminary field work informed the field work in the following ways:

- Role overload associated with being an action researcher;
- Development of the human instrument, that is, interviewing skills;
- Testing of the recording equipment;
- The need to pursue individual interviews rather than or in addition to group interviews in order to obtain greater depth;
- The resources needed to collect and analyse the qualitative data.

The researcher found that the demands of technical facilitation, left little time for observing the group interactions, or thinking about the research process. The researcher was more occupied as consultant, worrying about where the session was headed, how the facilitator was going, and contracting for future sessions. There was also the concern that the research processes would be strongly biased to the chauffeur's view of the GSS activity. The same concerns were applicable to playing the role of process facilitator, an even more demanding role. These aspects led the

researcher to move away from an action research perspective to a less "action", more "research" role for the field work.

The interviewing was found to demand considerable skills. These included avoiding putting one's own constructions into the interview, rather allowing the interviewees to speak, employing active listening techniques of reflecting back what a participant said, looking for opportunities to clarify meaning, and avoiding closed questions. Basic skills were practiced, such as, introducing oneself, explaining the purpose of the interview, the presence of the tape recorder, and negotiating the length of the interview.

The group interview was found to have several associated difficulties. It was difficult to meet with the group for more than ten to fifteen minutes as group time was particularly precious. This severely limited the depth of questioning that could be carried out. Usual group dynamics (see Chapter One Section 1.3.3) including domination, social loafing, blocking and evaluation apprehension, also affected the qualities of the response. The lack of air time compromised the ability to discover each individual's perceptions of the GSS activity.² Additionally, the quality of audio recording varied as people spoke simultaneously, and varied with proximity of individuals to the single microphone used. All these aspects, provided support for the move to individual interviewing for the field work. Such interviewing was trialed following some single occasion GSS sessions. The quality of the data collected sent a positive signal that individual interviewing was appropriate for the field work.

In addition to the learning associated with interviewing, transcription of audio tapes revealed the large quantity of spoken text produced, and consequently the large amount of time to analyse. Conventions concerning transcription, coding and retrieval had to be adopted. Decisions made for the field work included the use of a professional transcriber and storage of electronic text in a suitable software - Nudist (Richards & Richards, 1993).

² In view of the problems of a "manual" focus group interview, the thought of holding a GSS session to undertake the interview springs to mind. There is, however, the concern that the use of GSS for the research interview "contaminates" the participant experience of the use of the GSS for the task - the focus of the research.

4.4. Field Work

Based on the preliminary field work, the move was made to focus on individuals, and make use of one-to-one interviewing in the field work design. The choice of individuals as the unit of analysis, the choice of subjects, the interview design and transcription are covered in the following sections.

4.4.1. Unit of analysis

Zigurs (1993) raises the issue of "What is the appropriate unit of analysis for GSS research?" (p. 119). In answering the question she covers other researchers' efforts that include choosing the unit of analysis as the individual, the group, the meeting, the situation, the project, and the organization. Additionally, she raises the issue that averaging of individual scores (in quantitative studies) may not be meaningful when describing qualities of the group.

In this study, the unit of analysis is directed by the research question which focussed on "perceptions of *individual* participants of a client group". Thus individual participants are the unit of analysis. However, in analysing individual perceptions one is also covering aspects of the group, the meeting, the situation, the project and the organization. It is to be recognised that these "units" are constructions that are not clearly distinguished, particularly in an interpretivist study where individuals are regarded as constructing their experience, possibly with reference to each of these constructs.

Despite the undoubted influence of perceptions of the group, the meeting, the situation, the project, and the organization, it is individuals who ultimately hold constructions, and thus the individual is in some sense a fundamental unit of analysis, even if he or she modifies his or her constructions dependent on the group, the meeting, the situation, the project, and the organisation.

Denzin and Lincoln (1994) note "every instance of a case or process bears the stamp of the general class of phenomena it belongs to. However, any given instance is likely to be particular and unique" (p. 201). In view of this, interpretivist researchers employ theoretical or purposive rather than random sampling. They look for settings where the processes being investigated are most likely to occur. Through comparison of phenomena (in this study comparing individuals' perceptions) they develop an

understanding of all instances under study. (Denzin & Lincoln, 1994; Glaser & Strauss, 1967).

4.4.2. Choice of subjects

The client group, and the individuals making up the client group, had to satisfy a number of attributes to be included in the study. In particular, the group had to have a pressing problem in order to avoid the artificial aspects described previously as a pitfall of experimental studies. A planning task was envisaged as this is a common managerial problem requiring group involvement, and would thus have appeal to other users of GSS, facilitators and researchers. The task also had to warrant repeated use of GSS, to satisfy the longitudinal aspect of the study, in contrast to the single occasion use that has dominated GSS research. Ideally, the organisation would be reasonably "common" to enhance transferability, for example, a "typical" public sector or private sector organisation.

The study was envisaged as looking at the perception of individuals who were new to GSS rather than experienced. Thus changes from novice to more experienced could be studied over time. Given the relatively low penetration of GSS in the business environment, this would be relatively easy to accomplish.³ Additionally, until GSS activity is embedded in the business environment, the context of novice users will be relevant for GSS practice. For the research to proceed, the subjects would need to agree to the data collection including interviewing, recording, use of data and the presence of the researcher in the organisation and at GSS sessions. This would be formalised through a research contract.

To avoid an artificial setting, the contracting process between client sponsor and facilitation team would determine the appropriate people to be present, usually based on criteria of power, responsibility, authority and expertise. Physically, a group size of no more than ten is preferred for the Curtin GSS Facility because of the small size of the room. Additionally, there is only ten workstations, and although the MeetingWorks software allows two participants per workstation, doubling up compromises the anonymity and the comfort of participants. Furthermore, small groups are also easier to facilitate. If the situation warranted involvement of a larger number of members of an organisation, then sub-groups could be formed, possibly

³ Bulkeley (1992) reported only 200 decision rooms for the whole of the US. Within Perth, as of 1996, there are only two GSS decision rooms, both located at Curtin University.

including a further sub-group composed of members chosen to represent the original sub-groups. Alternatively, there could be a mixture of small group GSS activity and large group non-GSS activity.

The requirements for the study were eventually satisfied via a group of seven participants from a public sector organisation who were faced with planning for the next few years. A facilitation team designed a five GSS session process to undertake the planning task. The details of the case are described in Chapter Five.

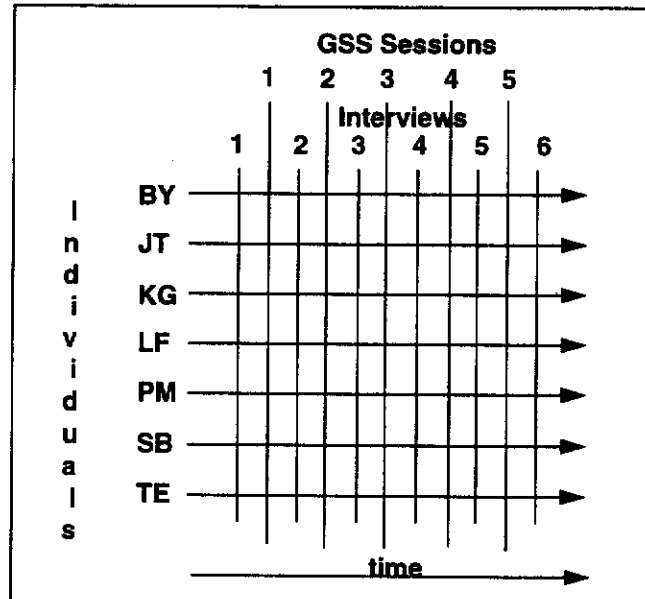
4.4.3. Interviews

4.4.3.1. Overview

Interviewing was the primary data collection technique. This data collection consisted of 39 interviews held with participants over the course of the five sessions. As indicated in Figure 4.1, the seven participants were interviewed pre-GSS and then after each of the five GSS sessions. Interviews varied in length from about thirty minutes to an hour and a half, and were held in the participants' workplace within two days after the sessions. The interviews were recorded on audio tape and were later transcribed.

Figure 4.1 A matrix displaying the research design for the interviews.

The longitudinal aspect is displayed in the horizontal dimension. The seven individuals are displayed in the vertical dimension. The initials are artificial to protect confidentiality. Five individuals were involved in five GSS sessions. PM did not attend session one. BY was absent for sessions four and five. Individual interviews were conducted pre-GSS and then after each GSS session.



A semi-structured, non-directive, in-depth style was adopted for the interviews where the respondents were encouraged to "open up". These aspects are consistent with what Neuman (1994) calls the "field interview" as opposed to the "survey interview" (Table 4.2).

Table 4.2 The field interview compared with the survey interview (Neuman, 1994, p. 359)

Typical Survey Interview	Typical Field Interview
1. It has a clear beginning and end.	1. The beginning and end are not clear. The interview can be picked up later.
2. The same standard questions are asked of all respondents in the same sequence.	2. The questions and the order in which they are asked are tailored to specific people and situations.
3. The interviewer appears neutral at all times.	3. The interviewer shows interest in responses, encourages elaboration.
4. The interviewer asks questions, and the respondent answers.	4. It is like a friendly conversational exchange, but with more interviewer questions.
5. It is almost always with one respondent alone.	5. It can occur in group setting or with others in area, but varies.
6. Professional tone and businesslike focus. Diversions are ignored.	6. It is interspersed with jokes, asides, stories, diversions, and anecdotes, which are recorded.
7. Closed-ended questions are common with rare probes.	7. Open-ended questions are common, and probes are frequent.
8. The interviewer alone controls the pace and direction of interview.	8. The interviewer and member jointly control the pace and direction of the interview.
9. The social context in which the interview occurs is ignored and assumed to make no difference.	9. The social context of the interview is noted and seen as important for interpreting the meaning of responses.
10. The interviewer attempts to mould the communication pattern into a standard framework.	10. The interviewer adjusts to the member's norms and language usage.

The interviews did have a clear beginning and end, marked by the start of recording and a thankyou when conversation had "dried up", although participants knew that there would be future interviews where there were opportunities to revisit or clarify previous responses. Additionally, whilst an hour was the nominal negotiated time frame, in practice the length of the interview was flexible dependent on the tacit

agreement "that most things had been covered". Similar, though not identical prompts were provided as comparisons between participants and comparisons over time were to be made. Whilst the interviewer had a schedule of prompts that was generally followed chronologically, the sequence was adapted to follow the interviewee. For reasons described in the "Preliminary field work", an individual interview was adopted rather than a group setting. Diversions were allowed to maintain energy and concentration for the focus of the interview, which was about the GSS experience.

Questioning was open-ended with frequent probing to elaborate and clarify meaning. As mentioned, the nominal, negotiated interview duration was for one hour, however, the researcher and interviewee would determine the pace of the interview. Generally, the researcher was careful not to rush the interview, rather allow the interviewee time to voice his or her opinions. The social context of the interview was not ignored. In particular, the researcher was careful to arrange with the interviewees time and places with which the interviewees were comfortable.

The researcher was careful to adapt to participant's language usage, an example of which was one participant's use of the term "bridges" as a metaphor for "strategies". Different participants entertained different norms. Some interviewees would entertain interruptions whilst others preferred an interview place away from such interruptions. Some liked to have a social chat after the interview, or even a coffee as part of the interaction .

The pre-GSS interview was structured differently to the post-session interviews, as the purpose and context was quite different. The specifics of each are discussed in the next sections.

4.4.3.2. Pre-GSS Interview

The pre-GSS interview served several purposes. These included building empathy and rapport with the interviewees, obtaining background information on the individuals, and obtaining views about meetings, planning, technology, and consultants. The latter would provide some "baseline" perceptions by which post-GSS perceptions could be compared.

The questions covered the following (see Appendix F for more detail):

- demographics
 - sex, age, position, work experience
- meetings
- chairperson
- planning
- computer based technology
- consultant
- facilitator
- expectations with regard to the GSS sessions

Additionally, the client sponsor was asked some questions about the contracting, structured planning, and their prior experience of GSS.

4.4.3.3. Post-session interviews

The interviews held after each GSS session were focussed on participants' experience of the GSS sessions. The interview question format is provided in Appendix F. It is to be noted that this formed a guide for the researcher in the initial interviews. Later interviews were more free flowing but still adhered to a broadly similar structure. The interview tapes and transcripts are the formal evidence of the actual implementation of the interviews.

The broad structure included coverage of the following questions (not necessarily in the presented order):

- 1) What was the best thing/worst thing about the session? (What did you feel about the session overall?) (What were the pluses, minuses, interesting points?)
- 2) What do you feel could have been improved about the session?
- 3) What was the same/different about the session compared with your usual meeting process?
- 4) What was the same/different about this session compared with the previous session?
- 5) What were the best things/worst things about the following?;
 - a) Facilitator
 - b) Chauffeur
 - c) Process
 - i) Introduction
 - ii) Brainstorm
 - iii) Discussion
 - iv) Organisation of ideas
 - v) Evaluation of Ideas
 - vi) Refreshment Break
 - vii) Ending
 - d) Technology
 - e) Group

Note: In (c) the process, that is, the stages of the actual session would be walked through from beginning to end. These stages usually included (i) to (vii) but would additionally include session context specific references, for example, "What was the best/worst thing during the Desired Future Statement stage?". The intention of (c) was to allow participants to recall the session in the order in which it had occurred.

- 6) Do you feel this (the session) was a worthwhile use of your time/your Department's time?

Interactive questioning was used wherever possible in the interviews to clarify and validate meaning. A short written list provided a prompt for the researcher and included:

- What do you mean?
- What led to that?
- What were the consequences of that?
- Why?, When? How? Who?...

The questioning sometimes varied across the interviews. This was because the most important aim of the interviews was to get participants to talk freely about their experience of the GSS sessions, that is, allow them enough freedom to describe their perceptions of the GSS activity. In the first few interviews, the researcher found it necessary to refer to the predetermined, but open-ended questions. Later, as more rapport developed between interviewer and interviewee it was possible to talk more freely. A tactic employed would be to talk through the sequence of the session so that the participant could recall experiences. Additionally, the print-outs or reports from the sessions were used as a prompt to remind interviewees of the experience.

The overall objective was to provide an open enough structure such that participants could describe their experience, yet enough structure so that they were referring to the GSS activity.

The original question structure was chosen as a starting point and a crutch if the respondents were running out of things to say. The aspects such as facilitator, chauffeur, technology, process, and group interactions, are obvious to participants in the GSS activity and are well documented in the literature. The use of the best/worst style of questioning is based loosely on critical incident technique (Flanagan, 1954) which relies on the premise that humans recall extremes and contrast easily.

Participants were informed about the interviews initially via a written document (see Appendix C). They were asked to set aside about an hour of their time for each interview. As mentioned earlier, in practice the interviews varied from about half an hour to an hour and a half. Interviews in the later sessions tended to be longer, as participants had more GSS experience, and there was better rapport between the researcher and the participants.

The interviews took place in office environments. In some cases there would be interruptions and time pressures, however, generally there was adequate time for the author to cover the agenda above, and allow the participants to describe any reactions they had about the sessions. The interviews usually occurred over the two days following any given session. In empathy with the longitudinal design, it was essential that interviews be completed before the subsequent GSS session. It was desirable that interviews were held as soon as possible following a GSS session, so that participants could recall most of the session. This was not feasible, immediately after the session, given that it was the end of a long day for the group. Interviews were conducted the following morning, when both participants and interviewer were fresh. An additional benefit may have been that the interval overnight allowed participants time to reflect, and thus recall more significant experiences. To avoid fatigue, and a corresponding reduction in the quality of interview, the researcher opted to undertake half the interviews on the first morning after the session, and the other half on the second morning after the session. The participants' interviews did not appear adversely affected by this arrangement.

4.4.3.4. Summary

The primary data collection method was interviewing. In-depth interviewing following a semi-structured basis was used. Individual interviews were held and recorded with each of the seven participants on up to six occasions producing a record of 39 interviews. The conduct of the interviews was in keeping with an interpretivist paradigm - allowing the actors to construct their meaning within broad rather than narrow constraints.

4.4.4. Transcription

Transcription of the audio tapes to diskette was undertaken by a hired professional using a transcribing machine - basically a cassette player with headphones and a foot pedal, the latter allowing hands free for typing whilst the foot is used to control the constant rewinding and playing required. One person rather than several was used to ensure consistency. Hiring a transcriber saves a large amount of the researcher's time, which can then be spent on tasks such as checking the transcription. An ASCII file was produced for each interview. This allowed later processing suitable for entry into word processing software and the qualitative data analysis software, Nudist (Richards & Richards, 1993). Within the transcripts, the speaker (either interviewer or interviewee) was identified via artificial initials. Whilst the hired transcriber endeavoured to obtain an "accurate" transcription, the researcher (who through experience with the interviewees had a better "ear" for their voice and language) checked all the transcripts. This was a laborious process! A sample of the transcripts was later audited by two independent auditors (see Appendix E).

It is recognised that the transcripts are the product of an interpretive process by the researcher, the transcriber, and the auditors. They form part of the researcher's construction of the participants' construction of the GSS experience. In particular the transcripts are a physical record that can be made accessible to fellow researchers. It is not claimed that the transcripts alone represent the "best" informed record of the phenomena. However, it is claimed that within the limits of our information processing abilities, the transcripts represent a "good" record of the phenomena under investigation. The researcher also has a "record" of the phenomena through the interviewing process, observation at the sessions, listening to the audio tape records, and reading of the transcripts. As a result of the lived experience, it seems plausible that the researcher has a deeper insight into the phenomena, than say an outsider who, for example, only examined the transcripts.

The transcripts conformed to a set of rules detailed in Table 4.3. These rules make clear what was transcribed and what was not transcribed. The rules were used for checking and auditing purposes.

Table 4.3 Rules of transcription

What is not transcribed:

- 1 the pitch of speech
- 2 the intonation
- 3 laughter
- 4 anything to do with the temporal nature of speech beyond the sequence of speakers and sequence of speech (e.g. pauses, speed of speech);
- 5 acknowledgments such as "yeah", "right", and "mm", from the second speaker (usually the interviewer) which take place repeatedly during a person's speech, and where the transcription of such would break up the flow of speech;
- 6 utterances such as "ah", "oh", "um", and "er", or partial utterances of words;
- 7 the sections where two people speak at once, and the speech is indecipherable;
- 8 repetition of words when clearly the one thing is intended but the speaker is using the repetition as a form of pausing;
- 9 slang such as "gonna" is transcribed as "going to".

What is transcribed:

- 10 the decipherable speech of interviewer and interviewee, excluding aspects above;
- 11 initials to indicate the speaker, for example, "* DA" indicates the interviewer, the researcher Doug Atkinson; "* KG1" would indicate a participant or interviewee;
- 12 "yeah" and "yes" are used interchangeably
- 13 "... " is used to indicate indecipherable pieces of speech. These may be of varying length but almost all would be less than four words, usually one or two;
- 14 the sequence of speakers is indicated, however, when two people speak at once and the words of the speech is decipherable, an arbitrary sequence choice is made;
- 15 references to names of other people are indicated by initials
- 16 punctuation including full stops, commas, sentence structure and question marks is subjective and was placed by the original transcriber.

4.4.5. Observation

The researcher played the role of observer at each of the five GSS sessions. Observation provided data for triangulation, and additionally, informed the researcher so that interviewing was made more meaningful. Triangulation is based on the premise of increased validity of a construct if it is identified through several different means (Lincoln & Guba, 1985). Observation at the sessions meant that the interviewer had deeper knowledge of the participants' GSS experience. This meant both that more insightful questions could be posed to interviewees, and also that the researcher was better able to understand what the interviewees meant.

As mentioned before, the researcher was not involved as a facilitator, or chauffeur, which meant that there were no duties to distract the researcher from the primary role of undertaking research.

The researcher observed the planning sessions from the back of the GSS room and took notes concerning what he saw occurring. There was no special structure placed on these notes but the notes included who was present, who spoke and what events took place. An extract of the notes appears in Appendix K.

The observation role was made clear to the participants before-hand. The position at the back of the GSS room (Figure 1.2) was reasonably inconspicuous as there was limited eye contact between the observer and the participants. The participants, whose attention was generally directed to the facilitator, and the screen at the front of the room, rarely viewed or spoke to the researcher, during the session. At the beginning of sessions, the researcher provided coffee, as the group was arriving mid-afternoon after a full work day. During the breaks, the researcher would lead the participants downstairs from the GSS facility, to a "refreshment" room, and at the end of the session, the researcher would arrange the interview schedule for the next day. The researcher made an effort not to discuss the session with the participants whilst at the session thus attempting to minimise impact at the time of the sessions. Interaction was saved for the interview times. In addition to the field notes, a videotape record of the sessions was taken via a video camera from the back of the GSS room. Whilst not analysed, this record remains for checking recollections or future data analysis. The participants were informed of the intention to video record, and gave their consent prior to the actual recording.

4.4.6. Documentation

A further record of the research and the sessions, exists in the form of various documentation. Some of this has been mentioned previously; the research contract (Appendix B) and the participant briefing (Appendix C). Additionally, a report of the sessions was produced for the client at the end of the sessions. This report included all the hard copy reports produced via the GSS technology in the course of the sessions. An extract of the complete report appears in Appendix I. On occasion, during the interviews, the researcher used a copy of the session reports as a prompt. In general, the documentation was kept as a reference check in keeping with the triangulation research tactic and also as a record of the GSS activity

4.5. Field Access

Field access in GSS is not easy, which in part is likely responsible for the greater proportion of laboratory studies, rather than field studies (Pervan & Atkinson, 1995). GSS activity is still largely the domain of research institutions, consulting work is not widespread (particularly in the Perth environment), and embedding of GSS within organisations is relatively rare (Bulkeley, 1992).

The researcher was fortunate to have links to the Strategic Planning and Decisions (SPD) Unit at Curtin which led to the field access for this study. Considerable work however, had to be carried out to satisfy the competing demands of researcher, consulting team, and client. An agreement was reached whereby the chief consultant (facilitator) would advertise the possibility of a research/consulting opportunity for a prospective client, at a course that the consultant was presenting to managers drawn from Perth organizations. The offer would include a reduced consulting fee as an inducement for participating in the research. Prior to this, the researcher had phoned managers of Perth organisations drawn from a business directory. This had met with limited success, as whilst organisations were interested in the consulting it was not a pressing need and/or they were unsure about the time commitment.

Fortunately a client, The City of Curlew⁴, emerged from the consultant's advertisement. The expression of interest was pursued by the researcher through a series of meetings, during which the nature of the research, the consulting and the

⁴ A pseudonym has been used to protect confidentiality.

responsibilities of all parties was developed. This was formalised in the research contract (Appendix B).

4.6. Practical Field Work Problems

Whilst every research design seeks to anticipate problems of field work, there are always issues that emerge in the course of the field work. Early in the interviews, it was clear that participants viewed the researcher as part of the facilitation team. This was particularly the case in the pre-GSS interviews where, apart from the client sponsor, the client group had not met the facilitation team. The researcher endeavoured to distinguish his role from that of the facilitation team, and this was largely achieved to a degree, but by no means absolutely. Given that both the facilitation team and the researcher were associated with the university, it was natural that the participants felt the researcher was part of the external team, trying to help them.

Two participants, Brian and Peter⁵, were unable to attend all sessions. Initially the researcher saw this as an issue for the research design, in the same way that statisticians are faced with the issue of missing data. However, on reflection, participants being absent is a feature of real world application. Group members are often absent from meetings for a whole host of reasons. What is of interest is how this affects the behaviour and perceptions of group members. In this study, one participant, Brian, missed the first session on paternity leave and the other participant, Peter, missed the last two sessions on long service leave. With respect to the research question concerning changes over time, five participants experienced the complete five sessions, one participant experienced four of the sessions and the other experienced three of the sessions. Thus all seven cases could be used to help answer the research question.

Scheduling of interviews was tricky, and as mentioned earlier, compromise had to be reached between the commitments of the interviewees and the fatigue faced by the interviewer in conducting numerous interviews. Generally the researcher was able to conduct the interviews on the two days following the session. This allowed the participants to recover from the session, however, the experience was still fresh in their minds. Additionally, it allowed the researcher to conduct the interviews to a

⁵ Pseudonyms have been used to protect confidentiality.

similar standard as there was adequate time to recover with three or four interviews on each day.

The interviews were held in the work place and were subject to interruptions either from incoming phone calls or from other staff. The researcher coped with this by switching off the recorder and then reorientating the interviewee by repeating where the interview had broken off. Occasionally the interview went off on tangents which were tolerated to the point where there seemed some connection to the GSS experience, however, if it went beyond this point, the researcher endeavoured to bring the focus back to the GSS session the participant had experienced.

One of the issues confronted by field workers is how to end the engagement. With this study, the research contract clearly limited the researcher's time with the organisation. The researcher ended the last interview with some time for the participants to reflect on the researcher's involvement. The researcher then formally thanked each participant for his or her time throughout the research. With the client sponsor, the researcher used the discussion of the planning report as the final meeting. This meeting was also attended by the facilitator. These events represented the ending of the researcher's involvement with the client group.

4.7. Researcher's Perspective

It is important in interpretivist study, where the dichotomy between subject and object is denied, to explicate the researcher's values and orientation. Indeed Denzin and Lincoln (see Table 3.1), describe the first phase of research as being about the researcher, including their location in history and research traditions, his or her conceptions of self and the other, and the ethics and politics of the research. These issues are discussed below.

4.7.1. Ethics

Ethics (morals) are concerned with principles of "right" conduct. In a sense they form part of the paradigm or world view of the researcher, either consciously or unconsciously. Denzin and Lincoln (1994) describe five ethical stances; absolutist, relativist, deceptive, feminist and consequentialist whilst also acknowledging that the positions merge with each other. In this study, the researcher has adopted an

absolutist position. This position argues that researchers have no intrinsic right to invade the privacy of others and that disguised research is unethical. The absolutist position is in keeping with professional societies that are concerned with, protection of subjects from harm, deception, and loss of privacy. The tenet of "informed consent" is used as the principle to protect the researcher from unethical behaviour.

The development of the agreement amongst the parties concerned, and the conduct of the research, followed the ethical principles developed by the American Psychological Association (1992), an extract of which is presented in Table 4.4, and then discussed in the context of the study.

Table 4.4 Research ethics: Extract from ethical principles of psychologists and code of conduct (APA, 1992)

Code	Ethical Principle
6.06	Planning Research
6.07	Responsibility
6.08	Compliance with Law and Standards
6.09	Institutional Approval
6.10	Research Responsibilities
6.11	Informed Consent to Research
6.12	Dispensing with Informed Consent
6.13	Informed Consent in Research Filming or Recording
6.14	Offering Inducements for Research Participants
6.15	Deception in Research
6.16	Sharing and Utilizing Data
6.17	Minimizing Invasiveness
6.18	Providing Participants with Information About the Study
6.19	Honouring Commitments

The researcher planned the research so as to meet standards of competence and ethics. The dignity and welfare of participants was respected at all times. No federal or state laws were breached. Approval from the host institution (City of Curlew) was

gained prior to conducting the research. This was formalised in a research contract that specified the responsibilities of each party (see Appendix B). Additionally, participants were further informed about the nature of the research, through a briefing document provided prior to the commencement of the research activity (see Appendix C).

Confidentiality was covered in the research contract, and additionally, discussed with each of the participants. The participants gave their consent to recording and use of individual data, with the provision that anonymity be protected. Participants were encouraged to participate in the full series of sessions and interviews, however, exceptions were made for participants who had to take leave. Thus participants were not made to feel uncomfortable about withdrawing. Consent to record the interviews was requested at each interview and participants were given access to the recorder with the invitation that they could switch the recorder off at any stage.

The inducement for the research participants was made clear in the research contract signed by the respective parties. In return for a professional consulting service they were to allow access at sessions and for interviews. No deceptive techniques were used in the research design. The contract included the clause that the client agree to the publication of results in the thesis and journal articles, subject to confidentiality issues of maintaining anonymity for individuals, but allowing use of the organization name, upon request.

The researcher minimised his invasiveness to that which was agreed upon in the research contract and briefing document. This pertained to observation at GSS sessions and interviewing at the participants' work place. Information about the study was provided whenever the researcher was questioned, in particular the researcher was careful to correct perceptions about his role (e. g. confusion about researcher role or consultant role).

Overall the researcher endeavoured to maintain "informed consent" and honour all commitments made to the participants. As part of the Curtin University doctoral candidacy requirements, the dissertation proposal was formally passed by a University Ethics Committee.

4.7.2. Politics

Guba and Lincoln (1989, pp. 123-124) attack the notion that science (research) is value free, noting that scientists (researchers) who claim their work is value free "cannot possibly appreciate the political impact of their own knowledge-production and knowledge-utilization activities" and furthermore they risk "maintenance of the political and social status quo".

Within this study, political aspects are associated with the relationships among researcher, participants, client sponsor, University, and Strategic Planning and Decisions (SPD) Unit. The University, for example, required a research contract between the parties, and particularly stressed the freedom of the researcher to publish results. The SPD Unit was cognisant of its reputation and hence required a good deal of control over the contracting and conduct of the sessions. The researcher had to influence all the parties to participate in the research. During the research the researcher had to resolve role conflicts such as when participants would ask the researcher to inform the facilitator of some issue.

Whilst recognising the constraints, the author has adopted a view of attempting to empower the stakeholders in GSS, users, facilitators, and designers. In particular, through adopting an interpretivist paradigm - a perspective that is concerned with the actors' viewpoint - there is opportunity for the participant's views to emerge, so that recommendations for design and application of GSS takes these into account. This may well change the status quo by providing all stakeholders with information not previously available.

4.7.3. History and Research Traditions

The researcher was trained as a mathematical statistician and had worked for several years in statistical consulting in medicine, agriculture and mining. The measurements in these areas were generally at the "objective" end of the scale, concerning aspects such as time, and biochemical quantities - things that are usually considered independent of human and social aspects.

Statistical expertise led to lecturing at Curtin University in first year statistics courses for business students. Organisationally, the researcher was attached to a Decision Science area within the School of Information Systems (then known as

Computing and Quantitative Studies). DSS and later GSS became research interests amongst several staff, including the researcher in the late 80s, and in the 90s a visit from Lewis resulted in a GSS Facility being established at the School.

Before undertaking field work, the researcher was involved in two major sets of GSS laboratory experiments, reported in Pollock, Atkinson and Lewis (1991), and Glasson, Atkinson, Chang, and Whiteley, (1994). The narrow focus of these studies and positivist approach created a feeling of unease in the researcher. The GSS environment seemed so rich, so how could one reduce this richness to a few numbers without having lost useful knowledge.

The application of natural science methods to a phenomenon such as GSS that obviously had a human and social dimension seemed inappropriate to the researcher unless the focus was on aspects such as the time taken to complete a meeting phase or the number of ideas generated where the constructs were more likely to be inter-subjectively agreed and hence socially stable.

Research methods in IS classes, based around Mumford, Hirschheim, Fitzgerald, and Wood-Harper (1985) sensitised the researcher to approaches other than surveys and laboratory experiments, however, it was not until the researcher came into contact with Glaser and Strauss' grounded theory method at a lecture given by Whiteley, that a commitment to "qualitative research" began. This commitment has taken place since the early 90s in a discipline (IS) and environment where qualitative research has gone from being obscure to more "mainstream". In dealing with qualitative research the researcher has been led to the paradigmatic debate articulated by Guba (1990).

4.7.4. Conceptions of self and other

Discussion of self and other represents the situating of the researcher relative to the researched. To the positivist, self and other is not an issue as the researcher takes steps to distance one's self from that which is being researched. Inquiry is thus thought to be value free. To the interpretivist, the distance between self and other is close and inquiry is value laden. The other is seen through the eyes of the researcher, mediated by his or her race, gender and culture. Self and other are discussed below in the context of the study.

In terms of race, both the researcher and respondents were white Anglo-Saxon, living in an Australian culture, thus there was considerable shared heritage. The researcher was male, and of the respondents there were six males and one female. The researcher has been conscious of the numerical domination of males in GSS groups undertaking sessions at the Curtin GSS Facility and that interviewed females would occasionally comment about gender issues, however, the researcher has not focussed on gender as an issue in this study.

The researcher was conscious of differences in power amongst the parties. The client sponsor as manager had authoritative power over his staff and could be considered the "gatekeeper" of the field access. The researcher recognised that none of the respondents had University qualifications, their education was based on their work experience, and trade and technical college qualifications. The department, from which the group came, was geared toward dealing with the environment in a more pragmatic manner than the reflective nature of the researcher's own academic work environment. The researcher found this somewhat refreshing.

With regard to the research questions, the researcher naturally had some a priori beliefs. However, he was prepared to adopt the inductive approach of grounded theory method (Glaser & Strauss, 1967). The researcher expected that there was a "gee whiz" or novelty effect, where participants would be initially enthused and excited about the GSS technology, however, this would wear off over time. Coinciding with this effect the participants would become more knowledgeable and hence more critical of the GSS use, possibly suggesting not to use the GSS technology. The researcher was also cognisant that the participants could be dealing with the novelty of task and process as well as the novelty of the GSS technology.

With regard to GSS, the researcher views the technology as a means for thinking about group work. The use of the technology challenges people's notions of how group work should be carried out. For example, users are confronted with whether or not it is appropriate to follow democratic rules and use highly structured processes in a computer-based environment, particularly for face-to-face meetings. The researcher does not see GSS as an answer to group decision making and problem solving, rather it poses questions. For small group face-to-face decision making, the technology is generally prohibitive in cost for any, but large organisations. The technology itself is sufficiently clumsy such that its infiltration to traditional meeting structures is likely to be slow. However, there are significant applications of GSS. The cost effectiveness of GSS technology that enables groups to meet when

participants are dispersed geographically and temporally means that these are the areas where GSS may experience greatest growth in the short term.

The researcher feels that there is a sense of being able to improve the process of group meetings for the benefit of all parties and that this is the ideal to which GSS aspires. Whilst the ideal is unlikely to be achieved totally, we are likely to become better informed in the process.

The researcher views the paradigm and methodology chosen for this study as appropriate to the research question and area of study, but by no means an easy path. The uncertainty, number of decisions and introspection required of this work has been considerable. The researcher empathises with Denzin and Lincoln's (1994, p. 2) description of the researcher as a *bricoleur* or "jack of all trades" (possibly master of none!). On reflection, an easier but personally less rewarding path would have been to choose a research question that could be studied in the positivist paradigm by a survey questionnaire.

Strauss and Corbin (1990) provide insight into the dilemma confronting any researcher and that is "how much interpretation should there be of data?" (p. 21). They describe three stances which range from little or no interpretation "the informants speak for themselves" (p. 21), a middle ground which consists of researcher's interpretations and illustrative descriptions, and then a greater emphasis on researcher interpretation and conceptualisation that involves building theory. Thus there is a transition reflected in these stances from the constructed realities of the informants (indicated by transcripts) to the researcher's theory construction (indicated by the analysis of the transcripts). Within this study, the stance taken is most like that described as the middle ground. The researcher is careful not to lose the actors' meanings but at the same time recognises the need to reduce, order, select and interpret.

4.7.5. Summary

The researcher followed an absolutist ethical stance drawing on the APA code of conduct (APA, 1992) for guidance. From a political perspective, he worked within the constraints of the relationships among client, University and SPD Unit, but with an eye to empowering GSS stakeholders. Historically, he was situated in a positivist paradigm but in the course of his dissertation studies moved to an interpretivist

perspective, given the human inquiry focus of the research questions. The respondents in the study came from the same culture and race as the researcher, and gender issues did not emerge as a major factor in the study. The researcher stated his beliefs concerning GSS, the paradigm and method, and the research questions.

4.8. Truth and Trustworthiness

In positivist research (discussed in Chapter Three) reality is "out there" and considered single. The researcher is an observer and distances himself/herself from the reality, to avoid disturbing it, or "colouring" it, with their self. Instruments of measurement, for example, written questionnaires, provide a further means of detachment, designed to capture *the* reality. Hypotheses and concepts are determined a priori and are operationalised on measurement scales. Units of analysis are determined and sampled from an assumed population.

The "truth" criteria are described as *validity* and *reliability*, terms which can be used in a narrow sense referring to measurement, or in a broader sense referring to the research study in general. *Measurement validity* (face; content; criterion - concurrent, and predictive; and construct - convergent and discriminant) broadly refers to the extent to which the operational indicators measure the concepts of the study. *Research study validity* is described as internal and external validity. The *internal validity of a research study* refers to the capacity for alternative explanations within a study, particularly with reference to causality. *External validity of a research study* refers to establishing the domain to which the study's findings can be generalised. *Measurement reliability* refers to the consistency of measurement and is a necessary, but not sufficient, aspect of validity. *Reliability of a research study* refers to the capacity of other researchers to reproduce or replicate the study. (Neuman, 1994; Yin, 1984; Carmines & Zeller, 1979; Cook & Campbell; 1979)

Interpretivist research (as discussed in Chapter Three) makes different assumptions about the nature of reality. In this case reality is considered multiple, and is constructed (and reconstructed) by actors including the researcher. There are potentially as many realities as there are minds involved in the construction. Truth is better thought of as "truths". Whilst some of the truths may be similar or shared, no single reality is considered more privileged than another. Some constructions, however, can be argued to be more useful than others. Thus truth is neither considered as single nor absolute, but rather a search for constructions that are better

informed, more significant, and more useful than others. (Guba & Lincoln, 1989; Guba, 1990)

Guba and Lincoln (1989) define truth in an interpretivist paradigm as:

the best informed (amount and quality of information) and most sophisticated (power with which the information is understood and used) construction on which there is consensus [among individuals most competent...to form such a construction] (p. 84 and p. 86)

Given the different ontological assumptions of the positivist and interpretivist paradigms, Guba and Lincoln argue for different criteria for assessing interpretivist research and in their 1985 work quote the following from Morgan (1983):

Different research perspectives make different kinds of knowledge claims, and the criteria as to what counts as significant knowledge vary from one to another. (p. 15)

Internal validity as the degree of correspondence between study findings and the "real" world, is not applicable to a paradigm that denies that there is a single reality "out there". *External validity* as the degree of generalisability, is not applicable to a paradigm where each "reality" exists in different forms in different minds. *Reliability* as the degree of stability is not applicable to a paradigm that accepts that phenomena change as they are constructed and reconstructed. *Objectivity* as the degree of separation between knower and knowable is not applicable in a paradigm that denies separation. Lincoln and Guba (1985) take the positivist paradigm criteria of internal validity, external validity, reliability and objectivity (value free inquiry), and determine parallel interpretivist criteria named credibility, transferability, dependability and confirmability.

Credibility represents the degree of isomorphism between "the constructed realities of respondents (or stakeholders) and those realities as represented by the [researcher] and attributed to various stakeholders." (Guba & Lincoln, 1989, p. 237)

Transferability represents the degree of transfer between "sending and receiving contexts" (Guba & Lincoln, 1989, p. 241) where the sending context is that of the study and inquirer and the receiving context is that of some other who wishes to apply the study findings to some situation. The original inquirer is responsible for

describing the study sufficiently richly so that receivers can make judgments about the transferability.

Confirmability represents the degree to which;

data, interpretations, and outcomes of inquiries are rooted in contexts and persons apart from the [researcher] and are not simply figments of the [researcher's] imagination...data (constructions, assertions, facts, and so on) can be tracked to their sources, and that the logic used to assemble the interpretations into structurally coherent and corroborating wholes is both explicit and implicit in the narrative of a case study (Guba & Lincoln, 1989, p. 243).

Dependability (Guba & Lincoln, 1989, p. 242) is concerned with the "stability of the data over time". It requires that "methodological changes and shifts in constructions are ... both tracked and trackable (publicly inspectable)".

In relation to these criteria, Lincoln and Guba (1985) provide a list of tactics or techniques for meeting the criteria (summarised in Table 4.5). For *credibility* (internal validity) they describe (1) prolonged engagement, (2) persistent observation, (3) triangulation (sources, methods, and investigators), (4) peer debriefing, (5) negative case analysis, (6) referential adequacy, and (7) member checks (in process and terminal). For *transferability* (external validity) they describe (8) thick description. For *dependability* (reliability) and *confirmability* (objectivity) they describe (9) the dependability audit, and (10) the confirmability audit. Contributing to all the criteria, they include (11) the reflexive journal.

Table 4.5 Summary of techniques for establishing trustworthiness (Lincoln & Guba 1985, p. 328)

Criterion Area	Technique
Credibility	(1) prolonged engagement
	(2) persistent observation
	(3) triangulation (sources, methods, and investigators)
	(4) peer debriefing
	(5) negative case analysis
	(6) referential adequacy
	(7) member checks (in process and terminal)
Transferability	(8) thick description
Dependability	(9) the dependability audit, including the audit trail
Confirmability	(10) the confirmability audit, including the audit trail
All of the above	(11) the reflexive journal

These techniques were operationalised in this study in the following manner.

(1) prolonged engagement

"to learn the context, to minimize distortions, and to build trust" (Lincoln & Guba, 1985, p. 307)

Prior to the study, the researcher spent considerable time as a participant, facilitator and chauffeur in GSS sessions, learning the general context of GSS activity. During the preliminary field work, the researcher acted as chauffeur for nine GSS sessions. The field work involved 15 hours of GSS sessions, 35 hours of interviews and hundreds of hours analysing the data. Considerable time was spent in negotiating the research with the participants, and building trust both before, and in the course of, the interviews.

(2) persistent observation,

"for the sake of identifying and assessing salient factors and crucial atypical happenings" (Lincoln & Guba, 1985, p. 307)

Persistent observation took the form of past observation and participation in GSS sessions (some 30 plus), the initial observation of the live sessions (15 hours), interviewing of participants (35 hours), and analysis of interviews (hundreds of hours).

(3) triangulation (sources, methods, investigators)

The seven participants represented multiple data sources amongst which findings could be triangulated to look for consensus. Observation of the sessions (first hand and also videotapes) and documentation (generated by the GSS and in the course of the planning sessions) represented a method triangulation against the interview transcripts. Triangulation via investigators was, by the nature of a doctorate (single author/researcher requirement), restricted to checking of coding and transcription.

(4) peer debriefing

"a process of exposing oneself to a disinterested peer...[to] keep the inquirer 'honest' ... to test working hypotheses...[and] test next steps in the emerging methodological design" (Lincoln & Guba, 1985, p. 307)

Peer debriefing took the form of analysis checks on coding by two independent judges. Additionally, two independent judges checked the accuracy of the transcription. The doctorate supervisor and associate acted as peers to provide feedback on the research process.

(5) negative case analysis

to refine a hypothesis until it accounts for a reasonable number of cases
(Lincoln & Guba, 1985, pp. 309-312)

Formulation of a hypothesis based on the findings is undertaken in Chapter Six. Whilst negative case analysis has a quantitative history, the principal is one of modifying hypotheses to account for variation. The most striking variation is the

discovery of an instance (case) which does not fit the original hypothesis - a negative case, thus requiring that the original hypothesis be modified. The discovery of variation is in part dependent on the scope of sampling. Within this study, only a small number of cases (seven) were considered, thus hypothesis development reflects the limited sampling. Further development of the hypothesis will require further research to extend sampling.

Note that quantitative research is often associated with the sequence:

- develop hypothesis based on literature review
- state hypothesis prior to data collection
- use numerical data and statistical analysis
- state that hypothesis is supported or negated
- make interpretations.

In contrast, the sequence of this study is:

- develop research question based on literature review
- collect qualitative data
- analyse and conceptualise to determine interpretations grounded in data
- develop hypothesis based on findings, modified to fit the data.

The emphasis is on an inductive approach and the treatment of hypotheses as modifiable working statements.

(6) referential adequacy

earmark a portion of the data to be archived - not included in whatever data analysis may be planned - and then recalled when tentative findings have been reached ... Sceptics not associated with the inquiry can use such materials to satisfy themselves that the findings and interpretations are meaningful by testing them directly against the archived and still 'raw' data. (Lincoln & Guba, 1985, p. 313)

The videotapes of the sessions fall into this category. They contain 15 hours audio of the five sessions. They were not transcribed and analysed as they are considered secondary data to the interview data, however, they are available for a sceptic to

check findings against. Although it has been analysed, and thus does not fit the "pure" sense of referential adequacy, the "raw" data of the interviews stored on audio tape and the transcripts stored electronically are available and indexed. Findings grounded in data (interview transcripts) as part of the inductive nature of the grounded theory method are traceable to the "raw data". The findings are presented with pieces of narrative. This narrative can be retrieved electronically from the interview transcripts, which in turn can be validated against audio tapes of the interviews.

(7) member checks (in process and terminal)

"data, analytic categories, interpretations, and conclusions are tested with members" (Lincoln & Guba, 1985, p. 314)

The audio recording of the interviews was a check that members said what they said. Any other validation is problematic as the ability of someone to recall what they said suffers from the frailties of human memory and is liable to be reconstructed. During the interviews interactive questioning was used to verify what participants meant. This assessment, at the time of interview, is more salient than post interview assessment when again participants have either forgotten what they meant or change their meaning based on differing context.

(8) thick description

"a thorough description of the context or setting...[and] the transactions or processes observed in that context" (Lincoln & Guba, 1985, p. 362)

to establish transferability "[it is not the inquirer's] task to provide an index of transferability rather it is [their] responsibility to provide the data base that makes transferability judgments possible on the part of potential appliers" (Lincoln & Guba, 1985, p. 316)

In keeping with the principle of describing the setting, and the processes, the author has chosen to describe the organisation, the contracting process, the participants, the facilitation team, the researcher, the GSS technology, and the task and process. These represent basic aspects which a person wishing to make transferability decisions to another context would likely ask about the study. The description is in Chapter Five.

With respect to dependability and confirmability (techniques (9) and (10)), Lincoln and Guba (1985) describe an audit analogous to the fiscal audit. A single audit including (a) an *audit trail* and (b) an *audit process*, can be used to attest to the *authenticity of the research process* (dependability) and the *authenticity of the research products* (confirmability).

Lincoln and Guba describe six *audit trail* categories. The six categories, with indicators from this study in brackets, are:

- raw data (audio tapes, transcripts (Appendix G), videotapes, planning report (Appendix I), field notes (Appendix K))
- data reduction and analysis products (Nudist data base, Tables in Chapter Six)
- data reconstruction and synthesis products (conceptualisations in Chapter Six)
- process notes (Sections 4.3–4.6, Appendix J Diary)
- materials related to intentions and dispositions (Section 4.7 Researcher's Perspective)
- instrument development information (Section 4.4.3 Interviews, Appendix F).

The *audit process* consists of five stages: 1) pre-entry (preparation of auditing materials and selection of auditor), 2) determination of auditability, 3) formal agreement, 4) determination of trustworthiness, and 5) closure. Lincoln and Guba's discussion is aimed at the general level of research projects. Doctoral dissertations have in fact their own auditing process which is the institution's formal examination process. The auditors (examiners) are invited by the institution based on their methodological and substantive area knowledge to undertake an examination (audit) via the dissertation. The examiners are charged to attest to the adequacy of the work on behalf of the research community. In the process they are allowed access to the materials "raw data" to test the claims including the findings, the methodology, the data, and their linkages. In addition to the five stages above, they also asked to attest to the originality and the significance of the work.

Thus both the confirmability and dependability auditing in this case are the responsibility of the dissertation examiners, however, they can make use of the audit trail described above.

(11) the reflexive journal

"has broad ranging application to all four areas [credibility, transferability, confirmability and dependability]" (Lincoln & Guba, 1985, p. 327)

records a variety of information about *self* (hence the term "reflexive") and *method*...[including] (1) the *daily schedule and logistics* of the study; (2) a *personal diary* that provides the opportunity for catharsis, for reflection upon what is happening in terms of one's own values and interests, and for speculation about growing insights; and (3) a *methodological log* in which methodological decisions and accompanying rationales are recorded. (Lincoln & Guba, 1985, p. 327)

A journal or diary was kept of the field work and the analysis (indeed the PhD itself) as a record of the research decisions and reflections. This diary is over 100 pages, a sample is provided as an example in Appendix J.

The above discussion thus covers the operation, in this study, of the criteria described by Lincoln and Guba (1985). An additional viewpoint is provided by Marshall (1985) (cited in Marshall & Rossman, 1989, p. 149) who lists ten criteria for judging qualitative studies. Most are covered explicitly in the discussion above. The discussion below deals with some relevant exceptions, which were:

- biases are discussed, including biases of interest (personal, professional, policy related) and theoretical biases and assumptions;
- field decisions altering strategies or substantive focus are documented;
- participants' truthfulness is assessed;
- theoretical significance and generalizability are made explicit.

Biases were covered earlier in the section on "Researcher's perspective" and field decisions were covered in the discussion of "Preliminary field work".

With respect to participant' truthfulness, the researcher did not hold a powerful position in relation to the participants. For example, the researcher was not the facilitator. A participant may well have withheld information that was directly critical of the facilitator or the facilitator's activities, if the facilitator was conducting the interviews. Additionally, the researcher spent considerable time with each participant in the course of the interviews, thus there was time for a degree of empathy and trust to develop. The interviews were conducted alone, and the interviewer was careful not to discuss interviewees' views with others, and to state to informants that this was the case. Thus confidentiality was seen to be protected. The research focus being on "experience of the GSS sessions" was not controversial, in contrast to a focus on say, "manager-employee relationships". Additionally, the conduct of the interview "your opinion is valued" rather than "I'm looking for this sort of answer", meant that participants could be freer to say what they felt rather than what they thought would win approval from the researcher.

The researcher conducted debriefing questions in the last interview. Participants reported that they had enjoyed the research experience and had accepted the presence of the researcher. One participant did describe feeling uncomfortable in interview situations because of the similarity to employment interviews. However, this was discussed openly, early on in the interview process, and discomfort appeared to lessen with each subsequent interview. The discomfort more likely led to a less rich discussion, rather than a deliberate "withholding of the truth". On rare occasions, participants would withhold naming a person that they were discussing in a negative light, but from the context, it was obvious to the researcher who they were discussing.

Thus both the research context, and the response from the debriefing, indicated that the participants were not deliberately misleading the researcher.

Transferability (generalisability) and theoretical significance, will be further discussed in Chapter Eight "Conclusions and Recommendations". "Thick description" was described as the technique for facilitating transferability (generalisability) and the following Chapter provides such a description.

4.9 Summary

The design of the research emphasised an inductive approach, sympathetic to grounded theory method (Glaser & Strauss, 1967), rather than the verification of an existing model. In sympathy with an interpretivist perspective, and the research question, the research design caters for individual interpretations, rather than measurement of an assumed single reality. A field setting was chosen to avoid the artificial nature of laboratory settings and the associated problems of transferability of findings. A longitudinal design was used to reflect the interest in the changes in user' perceptions with repeated GSS activity, rather than single occasion use.

Preliminary field work informed the field work design in two significant ways. Firstly, role overload and problems of bias determined that the researcher should play the role of observer only at GSS sessions, rather than the active roles of facilitator or chauffeur. Secondly, the need to undertake in-depth individual interviews rather than superficial group interviews, was recognised. The field work was designed to supplement the primary data from 41 interviews with observation at meetings, and documentation. Analysis was primarily based on the interview transcripts.

Consistent with an interpretivist approach, the perspective of the researcher was described, including politics, ethics, history and research traditions, and conceptions of self and other. The research was designed to meet the "truth" criteria of transferability, credibility, confirmability and dependability. The following chapter describes the context of the field work in order to satisfy the transferability criterion.

Chapter 5. Case Description

The context of the study is described in this chapter. This includes the organisation from which the participants came, the contracting process, the participants, the facilitation team, the researcher, the GSS technology, and the task and process.

5.1. The Organisation

This study involves people from the City of Curlew¹, which is a local government organization located in Perth, Western Australia. Local government derives its name from the fact that it is designed to serve a locality, a municipality or City Council of some tens of thousands of residents. In Australia there are three levels of government - federal, state, and local. Local government covers the smallest geographic area, and is the level of government that can be considered "closest to the people".

Demographically, the City of Curlew is one of about thirty local government organisations in the Perth metropolitan area. Its government boundaries cover about twenty square kilometres, and are located south of the CBD of Perth. The population of residents is about sixty thousand.

The environment of local government is complex. There are the demands and needs of the residents (residential, business and industrial) from which the organisation levies rates. These needs are represented by democratically elected members, called councillors. A work force, which can number several hundred employees, carries out the tasks required of it within the constraints of budgets, federal and state government operations, resident demands, and councillor directives.

The City of Curlew is a large organisation of some five hundred paid employees, with several levels of management from CEO downwards. The City conducts numerous functions for its residents including management of parks and reserves, engineering (roads), waste services (rubbish collection), community services (libraries, daycare, and sports facilities) and town planning, as well as the collection of rates, and the internal management of the organisation.

¹ A pseudonym has been used for the actual organisation in order to protect confidentiality

The work force is structured along functional lines, with a hierarchy of five divisions, in turn divided into numerous departments. Managers of the divisions represent the "executive" whilst the department managers are "middle management". To further complicate issues, the "Council" of resident-elected representatives sits "above" the work force. Councillors raise resident concerns at regular meetings, and committee systems provide an avenue of communication between the council and the executive. Residents also deal directly with the city council, for example, paying rates and requesting services.

The subjects in this study were employed within a department of the City of Curlew, the Parks and Reserves Department (PRD) which, as its name suggests, is involved in management of parks and reserves within the City area. The department employed approximately seventy staff. Of these, about sixty worked out in the field, and the rest were based in the administration office. The field staff were supervised by four supervisors who had offices at the council depot. The council depot was situated a few street blocks away from the administration offices. In the administration office, there were five staff, including the manager, parks coordinator and three technical staff. The office staff were responsible for the planning and financial management of the department, and dealing with public inquiries.

The financial side of the PRD consisted of a "maintenance" budget of about \$3 million annually to maintain the existing assets, such as regional parks, sports grounds, street trees, and street gardens. Additionally, a "new works" budget of around three quarters of a million dollars annually was available to develop new parks and reserves. "Special program" budgets, for example, a plant replacement program, were in the order of half a million to one million dollars.

5.2. Contracting

In 1993, the Department was facing considerable change. The City of Curlew was growing rapidly with new subdivision developments. With Perth entering an age of environmental awareness, residents expect high quality recreation areas. Land developers cater to this desire by presenting attractive street landscapes which then have to be maintained by the City of Curlew. The combination of greater maintenance demands and expectations of high quality were external pressures on the Parks and Reserves Department (PRD).

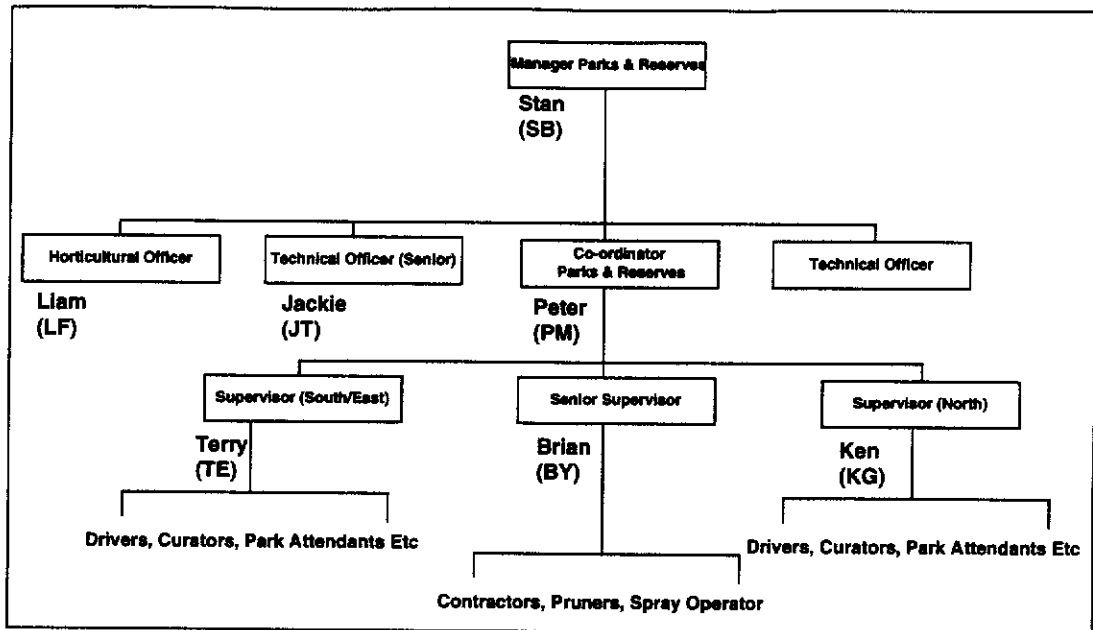
A new manager had recently taken over the Department, was aware of the external pressures, and based on his experience at another City Council, was keen to reorganise the internal structure of the Department to meet the changing needs. At "ground level", the Department had a work force of sixty divided into regions. Some staff, many of whom were long term, were attached to particular parks and reserves and had a certain amount of autonomy in terms of the work they carried out. Over the years, staff had become accustomed to their work customs and practices. The benefits of the current system had been the production of high quality parks associated with a sense of ownership by the workers. On the down side, the current system was difficult to monitor, and there were questions over its efficiency and the ability to deal with the new demands. The manager had been careful not to force radical change too early in his appointment but had been biding his time and looking for an opportunity to facilitate change, preferably through the use of an external facilitator and a participative planning approach that would promote stakeholder ownership.

The opportunity came whilst he was attending a professional development course on strategic planning. Here he came into contact with the Strategic Planning and Decisions (SPD) Unit, a professional consulting unit within Curtin University. An arrangement was made by which the SPD Unit would facilitate an intervention consisting of five Group Support System (GSS) sessions. In return for a reduced fee, the Department would allow a PhD researcher access for follow-up interviews and observation at the GSS sessions.

5.3. Participants

A brief description of the group of seven subjects from the Parks and Reserves Department (PRD) is provided. This data is based on "demographic" data from the first interviews, held prior to the GSS sessions. Subjects are presented in alphabetic order. An organisation chart is provided as reference in Figure 5.1. The position names located in Figure 5.1 include manager, coordinator, senior technical officer, horticultural officer, senior supervisor and supervisor .

Figure 5.1 Organisation chart of Parks and Reserves Department with pseudonyms of interviewees.



The choice of the group was influenced by several factors. The manager chose staff who he felt were most significant in planning future direction. In particular, he displayed a desire to involve those most affected by any change. Thus there was a mix of "field" and "office" staff. The field staff being represented by the three supervisors. The final choice of seven also reflects the senior positions within the PRD. The manager was also aware of the suggested limit of ten participants made by the facilitation team.

Brian had the position of senior supervisor. His job function included responsibility for all the field staff, including the other two supervisors and an assistant supervisor, and responsibility for all field activities. Brian was around forty years of age and had been in the work force for 23 years. He had spent the past five years at the City of Curlew as senior supervisor. His closest contact was with the two supervisors, followed by Peter the coordinator, Stan the manager and, depending on the project, the senior technical officer Jackie, or the horticultural officer Liam.

Jackie was 30 years of age and had been working for 13 years. She had been at the PRD for five months. Her position was senior technical officer. Her daily work involved her working with all of the other staff in the group including the coordinator Peter, the supervisors Brian, Terry and Ken, and the horticultural officer,

Liam. The nature of her work involved design, and supervision of design, including landscaping, earth works, irrigation, and playground equipment.

Ken had the position of supervisor of the North region. The supervisor role would traditionally have been known as a "foreman". He was in his mid 40s and had been in the work force for 30 years. At the City of Curlew, he had spent 13 years initially in the Engineering Department but had been about seven years in the PRD as a supervisor. Prior to the City of Curlew, he had been a contracts supervisor in private enterprise at an engineering firm. Ken's expertise in machinery was noted by one of the other supervisors, reflecting his engineering background. As supervisor of one of the two regions, Ken was directly responsible for about 20 field staff. Ken worked most closely with the other two supervisors Brian and Terry. The supervisors all had desks in the depot building, where they tended to start and end their days. They would open up the depot building at 6.30 am, sort out their staff's workloads for the day, send staff out to the field, and then at 8.30 am go out to the field to monitor activities.

Liam had the position of horticultural officer. He had been in the work force for about 20 years, eight of which had been spent at the City of Curlew. Initially he had been the nurseryman but when the nursery was shut down about five years ago he had come to the administration office as horticultural officer. The functions of his role related to landscaping, trees, and street landscape. This would involve regular activities as well as planning for development of small parks or concept plans for large areas. Liam would receive instructions from the manager Stan, but would then work with the supervisors. Each day he would spend 10 minutes at the depot just to monitor what was happening, and then return to the office. From the office he would deal with requests that had come into the City of Curlew and also ratepayer inquiries. At the office he would see Stan, Peter and Jackie in the course of a day.

Peter was in his mid 30s and had been at the City of Curlew for five years. His position was that of coordinator. The function of this role included acting as an interface or link between the "field" staff including the supervisors, and the administration, and technical staff. Thus the functional role was quite broad, spanning both administrative activities such as budgeting and planning, and also liaising with staff undertaking works out in the field. Peter described his position as a "public relations" position perhaps reflecting his interface role. The position was second in line to the manager of the PRD. In terms of daily work, Peter would liaise closely with Brian the senior supervisor and the manager Stan. If matters were of a

technical or horticultural nature then he would work with Jackie and Liam respectively. On a daily basis, Peter would start at 7.30 am down at the depot where the field staff, including the supervisors had their office. Peter had an office at the central administration sometimes known as the "Taj Mahal" by one of the supervisors.

Stan had the position of manager of the PRD. He was also the client sponsor for the GSS sessions. Stan was in his mid 30s and had been in the work force for 20 years. He had started work as a horticulturalist and his work life had revolved around horticultural activities. He had been at the City of Curlew for 12 months and hence, along with Jackie, represented two of the newer arrivals in the PRD. Stan had some six years previous experience as a manager at another local government organisation. Stan described his functional role as: "to provide direct supervision to my administration team which includes the technical staff and the parks coordinator. To provide goals and direction to my section with relation obviously to the goals of the organisation and to ensure appropriate financial supervision and administration to the expenses of the department".

Terry was a supervisor of the South region. He was in his early 40s and had been in the work force for about 25 years. His experience was in the horticultural area. He had been a supervisor at the City of Curlew for about five years. His duties had varied under various managers, however, primarily they concerned the supervision of field staff. At the present time these numbered about thirty. Terry would spend about eighty percent of his day in the field monitoring and inspecting jobs. Like the other supervisors, he would start the day in the depot at 6.30 am and allocate and send crew out to the field. Later he would meet with the coordinator Peter, and discuss other jobs. Terry worked most closely with the senior supervisor Brian and the coordinator Peter. Liam would be involved in relation to planting. Ken would be involved because of machinery. Terry worked less closely with the manager Stan and the senior technical officer Jackie.

In summary, the participants had considerable work experience and were aged from 30 to 45. Their time at the City of Curlew ranged from five months for Jackie, one year for Stan through to 13 years for Ken. All of the participants had considerable experience in local government. The seven would interact with each other at work on a daily basis. The physical and functional separation between administration office and depot meant that the supervisors had more frequent interaction with each other than with the office staff. However, the nature of the department's work

seemed to require integration of management, technical and field expertise and this was in evidence in the frequent communication and cooperation between all seven persons in their daily work activities.

5.4. Facilitation team

The facilitation team in the field work could be considered expert. The facilitator had run 30 plus strategic planning meetings and a similar number of GSS meetings. The chauffeur had facilitated 30 plus GSS meetings using the software MeetingWorks. They had worked together on 10 plus GSS meetings.

There was, however, a novel aspect to the facilitation in the field work. The facilitator had never previously used GSS technology to support all phases of the strategic planning process as described later in Figure 5.2.

The meetings that the facilitation team, consisting of facilitator and chauffeur, had previously been involved in usually involved payment for services. Within the field study, however, the facilitator donated his time and effort, free of charge. Motivation was still high, however, given both the professional character of the facilitator and his high profile in the business community as a facilitator. The chauffeur was paid the full professional rate for the sessions.

It is important, given the evidence for the link between "successful" GSS and facilitation (Bostrom, Anson & Clawson, 1993, p. 146), to distinguish the facilitated mode of GSS used in this study from research designs that either do not employ any facilitation, or do not describe the activities of the facilitator and/or chauffeur (Bostrom, Anson & Clawson, 1993, p. 155). The facilitator in this study met with the client sponsor pre-GSS to negotiate the GSS activity.² This negotiation resulted in a design for the GSS activity, including who was to participate, the task, sub-tasks and the supporting GSS process. At each of the five sessions the facilitator played a dominant role guiding the participants through a set of GSS modules designed to support the strategic planning process. The facilitator acted primarily as a process facilitator. In other words, the facilitator guided process whilst participants provided the content, in the form of discussion, ideas and judgments. The facilitator was

² The client sponsor is the name given in this dissertation to the person who negotiates on behalf of the group of participants with the external consultant facilitator.

knowledgeable about GSS technology, the strategic planning process, and group dynamics.

In addition to the facilitator, the chauffeur acted as scribe during idea discussion and organisation sessions and ran the software modules on demand from the facilitator. A two person facilitation team was the common consulting mode for the Strategic Planning and Decisions Unit, from which the team came, as it had been found in practice that the role demands of technical and process facilitation for complex tasks could not be met adequately by a single person.

5.5. Researcher

The researcher was present at the GSS sessions as an observer. It was felt that the advantages of having first hand experience of the context would help with interpretation of interview data collected later and this would more than offset the possibility of the participants behaving differently in the presence of an observer. In order to minimise the possibility of participants feeling uncomfortable through being observed, a number of tactics were employed.

Firstly, the researcher met with each of the participants in the course of pre-GSS interviews, and thus was known to each of them. Additionally, the researcher informed the participants verbally and in writing that he would be observing and videotaping the sessions as agreed in the research contract. As an observer, the researcher sat at the back of the Facility room. The participants, whose attention was generally directed to the facilitator and screen at the front of the room, rarely viewed or spoke to the researcher during the session. To improve comfort of the participants, at the beginning of sessions the researcher provided coffee. During the breaks the researcher would lead the participants downstairs to the "refreshment" room and at the end of the session the researcher would arrange the interview schedule for the next day. The researcher made an effort not to discuss the session with the participants whilst at the session thus attempting to minimise impact at the time of the sessions. Interaction was saved for the interview times.

By concentrating on the research aspect alone, the researcher did not suffer the role overload that the preliminary field work had alerted the researcher to, when combining roles of say researcher and facilitator, or even researcher and chauffeur.

In the final of the six interviews with each participant, the researcher asked the participants their thoughts about the researcher's presence at the sessions, and during interviews held at the City of Curlew. All participants viewed the interaction positively. It was the researcher's considered opinion that the interviewing process itself accelerated the "learning" of the participants given that they had an hour after each session to be reflective about the session.

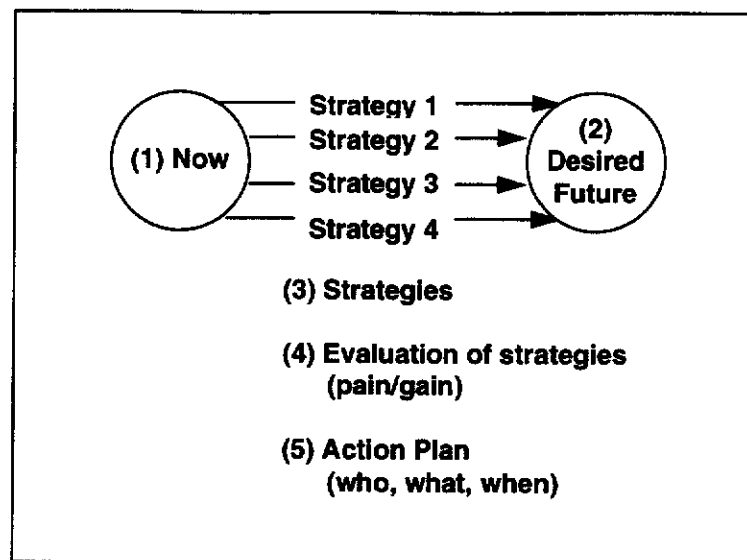
The researcher did not receive any money for the intervention, the incentive was the data collection.

5.6. Task and Process

The task for the GSS sessions was described as "Future directions and supporting structures for the PRD in the next 3 years". The three year time frame indicated a "strategic" aspect to the planning. The term "directions" indicated that the group were choosing paths or strategies to follow. The "supporting structures" phrase was intended to indicate that the group had choices to make about its internal organisation in order to achieve its goals. Thus essentially the task could be described as "strategic planning".

A five step process design consisting of five GSS sessions of three to four hours duration was planned for by the facilitation team and held in the Curtin GSS Facility over four weeks. The task was broken down into five sub-tasks. These are shown in Figure 5.2. The planned stages included (1) "The Now" , (2) "The Desired Future" , (3) "The Strategies" , (4) "Evaluation of Strategies" , and (5) "The Action Plan". "The Now" consisted of a situation audit (SWOT - Strengths, Weaknesses, Opportunities and Threats). "The Desired Future" represented where the group wanted to see the department in three years time. "The Strategies" represented the means by which the department could move from the current situation to the future. The "Evaluation of Strategies" was to be carried out by considering evaluation criteria and then evaluating the strategies on the criteria in a multi-criteria decision making (MCDM) style process (Edwards, 1971; 1977). This evaluation process was preferred to a vote without reference to criteria, as being more thorough and leading to a greater understanding of the issues. Finally, "The Action Plan" was to represent greater detailing of the preferred strategies in terms of tasks, responsibilities, and time frame.

Figure 5.2 A five step strategic planning process



The actual five GSS sessions corresponded closely to the five stages planned for, with the modification of the last stage "The Action Plan" due to time constraints. The allocation of responsibilities and time frames was omitted, and priority was given to detailing some of the tasks associated with key strategies.

5.7. GSS Technology

MeetingWorks (Lewis, 1993) was the GSS software used in this study. It is designed to "support small groups engaged in face-to-face decision making meetings" (Lewis & Keleman, 1991, p. 2.2). MeetingWorks corresponds to the Decision Room configuration of the DeSanctis and Gallupe (1985) framework where the meetings are of limited duration and the participants are in close proximity. The version of MeetingWorks used in this study was a prototype implementation that ran under DOS. A Windows version with similar functionality has since been released commercially by Enterprise Solutions.

MeetingWorks software like other GSS software - GroupSystems V³, Software-Aided Meeting Management (SAMM)⁴ and VisionQuest⁵ provides software

³ Ventana Corporation, Tucson, Arizona

modules to support idea generation, idea discussion and organisation, idea evaluation, session reporting and session management (see Table 1.4).

The technical aspects of the GSS Facility room (see Figure 1.2 repeated below as Figure 5.3) at Curtin University, in which the sessions took place, included a U shaped configuration of eleven networked PCs. These were, nine participant stations (Toshiba⁶ T1000SE notebooks), one network server station (a Toshiba T3100SX laptop), and a chauffeur's station (a Toshiba 4100SX laptop). The network hardware consisted of an Ethernet⁷ local area network over which a LANtastic Network Operating System⁸ was used. Two overhead projectors with LCD plates connected to the server and chauffeur stations were used to project computer screens onto the front wall for public display. A Toshiba laser printer was connected adjacent to the chauffeur's station, for producing hard copy reports during the session.

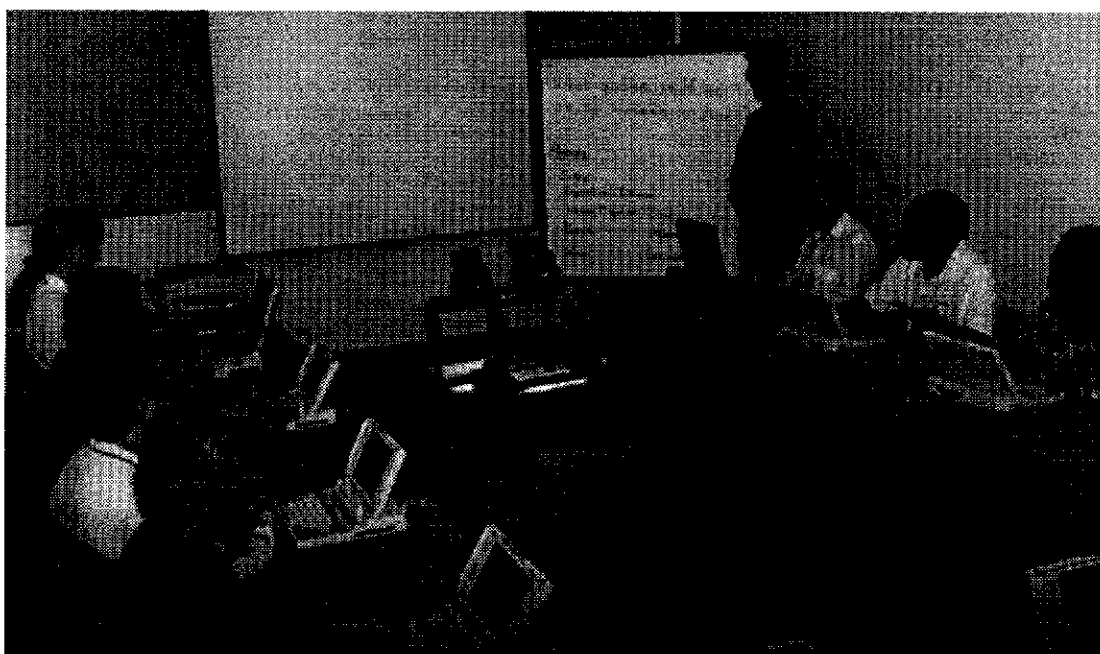


Figure 5.3 The GSS facility at Curtin University, Perth, Western Australia

The facilitator and chauffeur designed a "script" or sequence of GSS software modules to support each stage of the strategic planning task. Script writing is described as:

-
- ⁴ University of Minnesota
 - ⁵ Collaborative Technologies Corporation
 - ⁶ Toshiba is a trade mark of Toshiba America Inc
 - ⁷ Ethernet is a registered trade mark of Xerox Corporation
 - ⁸ LANtastic is a trademark of Artisoft

the process of translating problem-solving requirements or business processes into an ordered set of steps which are supported by MeetingWorks (MeetingWorks, 1995, p. 494)

The "ordered set of steps" are shown in Table 5.1 for each of the five sessions. The supporting MeetingWorks modules are given in brackets. These software modules were described in Chapter One, Table 1.4.

Table 5.1 The GSS script. MeetingWorks modules are in brackets and italicised.

-
- **Session 1 "The Now"**
 - Brainstorm SWOT (*Brainstorm*)
 - Discussion and Organisation of SWOT (*Discuss/Organise*)
 - Rate SWOT (*Rate*)
 - **Session 2 "The Desired Future"**
 - Brainstorm of Desired Future (*Brainstorm*)
 - Discussion and Organisation of Desired Future (*Discuss/Organise*)
 - Rate Future Desires (*Rate*)
 - Desired Future Statement (*Word processor*)
 - **Session 3 "Strategies"**
 - Brainstorm of Strategies (*Brainstorm*)
 - Discussion and Organisation of Strategies (*Discuss/Organise*)
 - Initial Brainstorm of Criteria to evaluate Strategies (*Brainstorm*)
 - Initial Discussion and Organisation of Criteria to evaluate Strategies (*Discuss/Organise*)
 - **Session 4 "Evaluation of Strategies"**
 - Discussion and Organisation of Criteria to evaluate Strategies (completed) (*Discuss/Organise*)
 - Weighting of Criteria (*Criteria Weighting*)
 - Evaluation of Strategies on Criteria and Analysis (*Weighted Factors*)
 - **Session 5 "Action Plan"**
 - Brainstorms on neutralising weaknesses and threats (*Brainstorm*)
 - Beginning the Action Plan
 - » Brainstorming an extra 6 dimensions to Rationalisation strategy (*Brainstorm*)
 - » Rating of Rationalisation dimensions (*Rate*)
 - » Activities to begin 6 of the 17 dimensions of the Rationalisation strategy (*Discuss/Organise*)
-

5.7.1. Level Two GSS MCDM Implementation

In terms of technology, a feature of this study is the use of a level two GSS technology (DeSanctis & Gallupe, 1987) containing an MCDM tool for alternative evaluation. Level two is used to refer to GSS technology that provides support for decision modelling (DeSanctis & Gallupe, 1987). A brief description of the MCDM tool is provided along with the way in which it was applied in the planning task.

The MCDM module in the software MeetingWorks is called "Weighted Factors". With a given set of alternatives and a given set of criteria for evaluating the alternatives, participants can enter numerical values that represent their individual judgments. The software produces anonymous aggregations and displays, and provides the means to explore sub-parts of the weighted factors model (Lewis, 1993). The basic method is consistent with Simple Multi-Attribute Rating Technique (SMART) (Edwards, 1971;1977) with the extension to "group" being the use of numerical averages across the participants as a summary, the ability to examine patterns across the group, and the provision of anonymity.

Assuming a set of alternatives and a set of criteria as a starting point, the following sequence of steps may be carried out. The implementation in the study is described in italics.

- 1) Participants privately weight each criterion using a 100 point allocation scale, that is, 100 points is distributed across the criteria. The weights are intended to represent the relative importance of the criteria in the evaluation.

In the third session the participants generated eight criteria they felt distinguished between four strategic directions. The strategic directions included education, raising the profile, rationalisation and subcontracting. A subset of the criteria included quality of the product, ease of implementation and budget requirement. In session four the participants weighted the criteria.

- 2) The system produces public displays including average weights (averaged across the group) and distribution graphs showing the spread of weights for each criterion. Whilst the distribution is shown, individual weightings are anonymous. The distribution graph can be used by the facilitator to stimulate discussion about consensus, differences or ambiguity.

Following the private anonymous input of weights in session four, the facilitator discussed the public distribution graphs of the criteria noting where there was consensus or differences in opinion.

- 3) Participants privately evaluate each alternative on each criterion using a zero to ten rating scale.

The scale was defined by the facilitator as: "fail" (below five), "pass" (five), "good" (six to seven), "very good" (eight to nine), and "excellent" (ten). The participants rated each of the four strategies on each of the eight criteria using this scale.

- 4) The system produces a weighted score for each alternative based on all the input data. The weighted score uses average weights from step two and average ratings (across the group) in step three.

The rationalisation strategy received the highest weighted score. There was general support for this result.

Numerous (some 40) displays are available, allowing exploration of summaries and details of the model. Displays include graphic and tabular forms. Sensitivity analysis can be conducted albeit under the physical control of the chauffeur, that is, participants can verbally suggest changes in ratings or weights and view the effect on the model.

There was some comparison between the rationalisation strategy and the subcontracting strategy. It was observed that the former was superior on all criteria except the ease of implementation. Sensitivity analysis was offered, however, the participants were reluctant to make changes feeling that the initial averaged opinions should stand.

5.8. Summary

The implementation of the research design involved a field study, with the associated strength of having real stakeholders with a real problem. Recognising that the study here is but one of many possible implementations of GSS, a rich description was undertaken of the major features of the setting.

Seven individuals from a department of local government undertook five GSS sessions after their manager negotiated with an external facilitation team to undertake a planning task supported by GSS technology. The team consisted of two persons playing roles of facilitator and chauffeur respectively. The task was a strategic planning task involving the client group determining future directions over a three year period. The task was broken down into sub-tasks each of which were covered in a GSS session. These sub-tasks were then supported by MeetingWorks software. A multi-criteria decision making tool was used to evaluate the strategic directions. The GSS activity took place in the Curtin GSS Facility.

The description supports the transferability criterion of the interpretivist paradigm by allowing a person to consider how closely the context of this study matches the context to which he or she wishes to transfer findings. The findings are the topic of the following chapter.

Chapter 6. Findings and Discussion

6.1. Introduction

In this chapter, the primary data sources, the participant interviews, are described in a systematic manner leading to the researcher's interpretation of two major phenomena. The interviews are considered in chronological order to facilitate the identification of changes in perceptions of the participants over time. The descriptions are deliberately detailed so that the reader obtains a rich picture of the participant viewpoints and can trace the development of the researcher's interpretations. The interviews include pre-GSS and post-GSS session interviews with each of the participants.

The identification of changes in perceptions is developed in the following manner. Firstly, participant responses to the major questions from the interview schedule are described. Tables provide summaries of responses categorised by participant and session number. Through examining these tables it is possible to identify some major trends. Combined with the interview experience and session observation this led the researcher to the identification of important phenomena - important in the sense that there was substantial consensus evident among the participants.

Prior to the participant interviews, a briefing meeting which was held between the client sponsor, the facilitator and the researcher, is described.

6.2. Pre-GSS: Briefing Meeting

As part of the normal consulting process of the Strategic Planning and Decisions (SPD) Unit, there is a briefing meeting held between the client sponsor and the facilitator to jointly determine the nature of the issues concerning the client, and thus allow the facilitator to design supporting processes, specifically those that will be carried out at the Curtin University GSS facility.

In this study, the researcher attended this meeting and audio-recorded the interaction. There was a number of reasons for attending the briefing meeting. Firstly, it was

important to record this interaction as it represented shaping of perceptions of a participant - in this case the client sponsor. Additionally, the briefing meeting was an important interaction that would occur in the normal consulting process and thus should be considered as part of the GSS intervention. Furthermore, negotiation between the parties included a research contract and management of the research contract needed to be integrated with the consulting process in order to implement the research both practically and ethically. The research contract represented a compromise between reducing the impact of the researcher and research design, on the GSS activity under study, versus having access to the GSS activity and completing the study in an ethical manner. These issues were discussed in Chapter Four under "Field access" and "Ethics".

The transcript of the briefing meeting is known as "fac" and forms part of the data set described in Appendix D "Electronic data files description". The meeting was held at the City of Curlew offices in a meeting room. Three persons were present. These were the client, Stan, the facilitator, Darryl, and the researcher, Doug.¹ This was the first time these three people had met together, although Stan had met Darryl on a management course, Doug and Stan had recently met in the course of arranging the contract, and Darryl and Doug were colleagues at Curtin.

A variety of issues were discussed, firstly relating to the consulting initiative, and then later, the research. Stan began by describing the issues his department was facing. His primary motivation seemed to be captured in the following quote:

I've been here a year and since I've been here one of the things I've wanted to look at closely...is the way we operate externally, the way the work's programmed, and the way the staff are coordinated because I don't think its very effective or efficient the way it's operating at the moment. (p. fac 10-16)²

The facilitator, Darryl, responded to Stan's description of the issues by describing a sequential process for dealing with the issues. This conversation then led to discussion about the appropriate group for the process. The constraint of 10 participants in a GSS meeting, based on the number of workstations at the Curtin

¹ Pseudonyms have been used with the exception of the researcher (and author). The decision was made to use names rather than initials to add realism and promote readability.

² The reference to the transcript follows the following convention. For example, "p. fac 10-16" is a page of the transcript named "fac", line numbers 10 to 16.

facility, was mentioned. Criteria for choosing group members such as those who had relevant responsibilities and knowledge were noted. During discussion, Darryl and Stan resolved that the people to be included would be representatives of management, technical and supervisory staff, but not the work force. It was agreed that the interests of the work force would be partly represented by the supervisory staff. An extended discussion about timing of the sessions ensued. Three to four hours was a problem for the working day, yet this was the length of time needed for the GSS activity. A compromise was reached to avoid disruption to supervisor's field activities with sessions to begin around 3 pm and go for three and a half hours. The commitment of the supervisors, who had previously come to an agreement with the manager, was acknowledged with regard to the fact that they would be giving up several hours of their own time to undertake the sessions. They preferred to do this than disrupt their work activities. The facilitator mentioned that some sessions could be shorter than others. The topic of discussion then shifted, and Stan pointed out that he would have to tone down his personal involvement. In particular, he noted that it was up to the facilitator to get other group members to participate openly, although he observed that the other group members were outspoken and would not be shy in saying something about things with which they disagreed. The facilitator noted that commitment was associated with broad involvement and discussion. Doug mentioned that the participants should have the understanding that final decision making authority rested with the manager.

At this stage, the facilitator felt he had all the information he required and hence invited the researcher, to state any concerns. The researcher took the opportunity to provide Stan with a document about the process of the sessions and copies to distribute to the participants (see Appendix C "Documentation Provided for Participants Prior to GSS Sessions"). Stan replied that he would speak to the staff that day and also make a note to his executive officer outlining the process.

Discussion then ensued with regard to working out suitable dates for the sessions. The facilitator's availability was the main constraint. Five dates were nominated over a four week period in July 1993. The researcher then gave Stan a document that provided information about the research and was to be passed to the participants (see Appendix C). The researcher requested a list of names and contacts for the participants which the manager agreed to provide these. Interviewing arrangements were discussed and it was revealed that the supervisors worked from a depot nearby. Some suitable hours to access them were discussed.

The facilitator then requested (and later received) an organisation chart (see Figure 6.1) and said thanks to the manager for participating in the research. The manager replied that he was looking forward to the GSS sessions and that his own director would be interested in the outcomes. The formal meeting then ended. Stan then took the facilitator and researcher to view the council chambers before each returned to their workplace. From the researcher's perspective the impression was gained that the meeting had been positive, amicable and useful, and that processes appeared to be developing smoothly. The interaction between the manager and the facilitator appeared positive, however, the content of the facilitator's explanation of process seemed rather broad and vague. However, the manager appeared quite satisfied. The manager was later to reveal that he had confidence in the facilitator. This seemed to be based on positive experiences with the facilitator during a management course. Additionally, the manager had not undertaken this form of planning before and hence was naive about the value of supporting processes, thus was unlikely to be critical of the facilitator's explanations.

In summary, the briefing meeting discussion from the consulting perspective included problem content, process, group determination, timing and scheduling, facilitation of the group, and a request for the organisation chart. From the research perspective, documentation concerning the process and the research, was passed from researcher to client sponsor. Discussion concerned timing, scheduling, and interviewing, and the researcher made a successful request for the necessary names and corresponding contacts. The general atmosphere of the meeting was positive.

The following sections represent the participants' responses prior to the GSS sessions.

6.3. Pre-GSS: Interview One

6.3.1. Introduction

The objectives of the first interviews were to; (a) gain rapport with the participants, (b) elicit some demographic information, and (c) gather some "baseline" information on the participants' views of aspects such as group decision making, meetings,

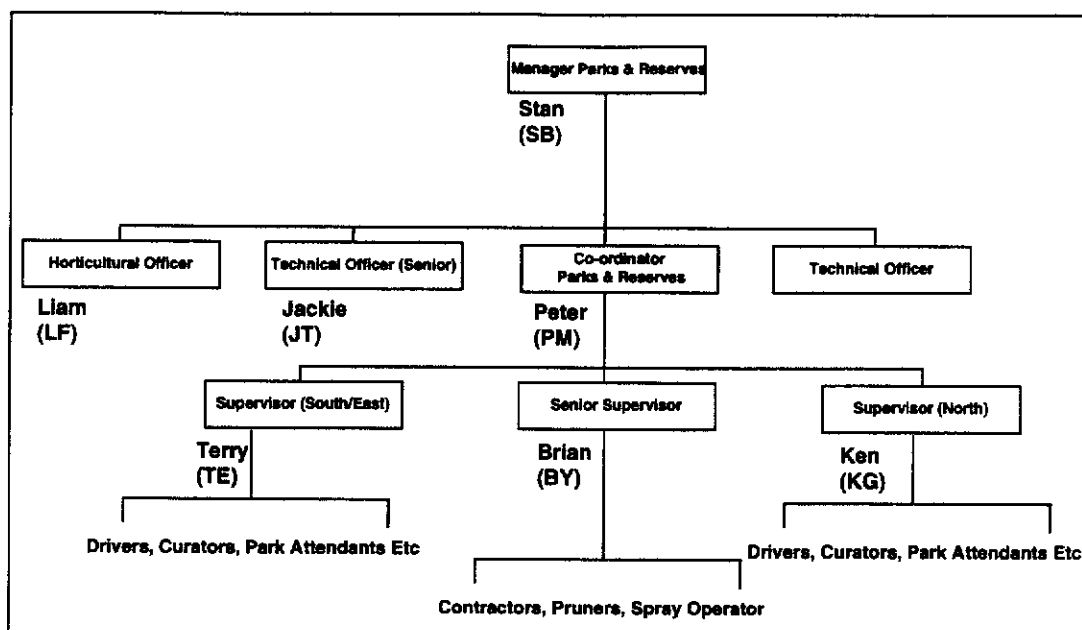
planning, facilitators, consultants, computer technology and expectations for the ensuing GSS sessions.

The questions and codes used in these first interviews are provided in Appendix F "Interview Instruments and Prior Codes". A summary of the demographic information was reported in Chapter Five "Case Description : Participants". Other data from the first interviews are summarised under the headings that follow. The participants' responses are ordered alphabetically based on their pseudonyms. References to quotations refer to the transcripts and then the line numbers, for example (p. by1 283) is a page from the BY1 transcript, line number 283. The transcripts are not provided in this dissertation because of their length (600 pages), however, samples have been examined by auditors and are available to examiners on request.

A descriptive summary is provided for each participant. The full text is coded within a database of a software designed for qualitative data processing. In this case, Nudist (Non-numerical unstructured data indexing searching and theorising), was used (Richards & Richards, 1993). An example of a retrieval of the raw text used to produce the summaries is provided in Appendix G "Extract of Nudist Retrieval Interview One". Following each individual participant summary there is a summary of commonalities and differences across all the participants. The summaries by their nature, do not include the detail of the individual responses particularly their variation. However, where appropriate, common themes - those that are shared among two or more participants, are identified, and where marked variation occurs, this is also noted.

The first section concerns the participants' understanding of the concept *group decision making*. To remind the reader of the organisation hierarchy, the organisation chart from chapter five is repeated below.

Figure 6.1 Organisation chart of Parks and Reserves Department with pseudonyms of interviewees.



6.3.2. Group Decision Making

Brian equated group decision making to *group discussion*. He saw positive aspects in that you could get the best result or answer by involving everyone. The downside was the time involved. His experience of group decision making was the casual interchange between the supervisors, say two or three, over a cup of tea in the morning, at lunch, or at the end of the day.

Jackie described group decision making as "making a decision which is ... discussed by and agreed on by a group" (p. jt1 117-18). Her experience of group decision making was the path from an initial idea, to discussion at monthly department meeting, and later discussion in groups of two or three, through to implementation. She saw positive aspects in allowing people to be aware of the organisation's direction, feeling part of it, and allowing their valuable input. Her negative aspects included, the effect of people who were negative, and the problems of group size, in terms of formulating answers to problems that included many people, and therefore many opinions.

Ken preferred to use the term *group discussion* as he felt that the manager would always have the final say and make the decision. He was very positive about group discussion and the ability to speak openly in his situation and without any problems. His experience of group decision making was communication between the supervisors. His positive aspect was the sharing of information so that the "left hand knows what your right hand's doing" (p. kg1 308-9). The negative aspect for Ken, was the situation where disagreement was taken as a personal attack.

Liam saw group decision making as involving people in the department to get views and ideas to obtain a total picture and complete a job. His personal experience, with respect to landscaping, would involve one-to-one interactions followed up with small groups, of say three persons, having input with respect to different aspects of the job. With regard to positive aspects of group decision making, he noted the requirement of openness, and no "hang-ups" (p. lf1 326). Additionally, he noted that long term work relationships meant increased understanding of the requirements of others and thus one could make others' jobs easier. His negative aspects of group decision making were preconceptions of individuals, lack of willingness to bend to others' views, and possible ill feelings that could result.

Peter described group decision making as coming together, listening to everybody's ideas, and then coming up with a situation that everybody either accepted or went along with. His experience of group decision making was the monthly departmental meetings. Thus his positives and negatives related to these meetings. His positive aspect was that everybody had an opportunity to air their views. His negative aspect was that sometimes a definite decision was not made, and there was a consequent lack of direction, particularly when decisions had to be referred to other management levels.

Stan described group decision making as empowering all the people who are involved in a work situation, or have an effect on a situation, to participate in a decision. He noted that this could be complicated. In particular, he related group decision making to his staff. Stan felt that group decision making had not taken place in the past and thus his staff were having some difficulty adjusting to his more participative style, expecting that he, the manager, should be making the decisions, as had been the case in the past.³ His negative was the greater work required to

³ This can be contrasted with Ken's view that the manager makes the decision and Peter's view of a lack of direction when a definite decision was not made. Stan recognises his participative style

involve other people. He also noted that a decision he thought would be made, could change, but that this would be for the better. He also noted that in situations where he felt the staff's decision was equally valid, he would allow a decision to go their way so that they felt they'd had a real effect, rather than having just been involved.

Terry described group decision making as the sharing of ideas. His context was the sharing of expertise amongst the supervisors, similar to what Brian and Ken reported. Additionally, he noted the context of the monthly department meetings which would involve the supervisors and the technical staff in passing on ideas or gathering people's opinions. His positive aspect of group decision making, was the better result that could be achieved by involving a number of people, rather than relying on your own, possibly narrow view. His negative was the situation where no consensus decision was made, and thus the manager had to make a decision which some would disagree with. However, in Terry's work situation, particularly among the supervisors, he felt that group decision making was a positive thing.

Summarising across the group, group decision making was regarded as involving people, communicating and discussing, and sharing ideas, opinions, views, and expertise. This could take place in a variety of situations including one-to-one, a small group, and at formal monthly staff meetings. The positive aspects were the better results achieved, participation, and being aware and feeling a part of the organisation. The negative aspects included the time and effort involved, personality attack, unwillingness to adjust to others, lack of clear direction, and no consensus decision - either through large group size, or disagreement.⁴ On balance, attitudes toward group decision making were more positive than negative. Ken was particularly positive.

6.3.3. Meetings

In all cases, when the participants were asked the meaning of meetings to them, they began to talk, at some stage, about their monthly departmental meetings. These

and the difficulty that staff were having in adjusting. The views from Ken and Peter corroborate this perception.

⁴ GSS is designed to improve participation and thus should be received favourably by those participants expressing this aspect. Similarly GSS technology is thought to save time and effort. The provision of anonymity can provide protection from personality attack. It is debateable whether GSS will bring about consensus, rather it is likely to help make agreements and disagreements explicit.

meetings involved a total of nine people, and included the *field* staff and the *office* staff. The field staff were the supervisors (Brian, Ken and Terry) and the assistant supervisor. All were based at the depot, a large area consisting of buildings and machinery, a few street blocks from the main administration office. The office staff were the manager (Stan), coordinator (Peter), and technical staff (Jackie and Liam). They were based at the main administration office.⁵

Brian referred to the purpose of the monthly meetings as being to "discuss forward works, current works and any grievances and problems" (p. by1 262-63). He described the meetings as being *formal*. The formal aspects were the chairing of the meeting by the manager and an agenda. An agenda sheet was distributed prior to the meeting. To this the supervisors could add any questions or information that was relevant to the department. Brian described the positive aspect as, "it all comes out" (p. by1 297) and that problems were solved, either at the meeting, or in communications that followed the meeting. His negatives were the inconvenience in terms of interrupting his work, and that the meetings were time consuming.

To Jackie, meetings included discussion groups, workshops, general conversations, and the monthly department meetings. She described the monthly meetings as "fairly informal" (p. jt1 174) and mentioned the set agenda. The agenda items would be listed with a person's name and gone through in sequence. Jackie described the discussion as flowing fairly freely and that involvement of individuals would vary. Some would only comment on areas of interest whereas others felt all things affected them and thus would comment on most things.⁶ Jackie's negative aspect was the time involved, particularly as she felt the department was under time pressure and although the meetings were necessary, they could not afford the one to two hours involved, especially the supervisors who had to come out of the field. Her positives were feedback, gaining an overview of the department and field operations, and understanding and forming relationships with work colleagues. The latter may have

⁵ Two staff present at the departmental meetings (an assistant supervisor and technical assistant) were not *full* participants at the GSS session but were individually invited to sessions four and five as observers. The rest of the time they manned the department office while the group was at Curtin University. The manager felt that they were not key players in the planning activity, however, they would benefit from at least observing a session that the main group of seven were undertaking.

⁶ This is indicative of the common observation that participation at meetings is seldom equal. Participation must in part be shaped by motivation as well as opportunity.

been more important for Jackie particularly given that she was the most recent arrival in the department.⁷

Ken described meetings as the monthly department meetings. These included *us* (the supervisors) and *them* (the office staff). Ken's positive aspect was the communication between the office and the field staff so that everything kept "fitting" (p. kg1 406).⁸ He felt meetings were a necessary part of the organisation's operations and his only negative was when people were negative.

Liam referred to monthly department meetings and special meetings. Special meetings were for new things that were starting up. Liam described the monthly meetings as regular but informal. They provided an update on current and future works, discussion of problems and a time, "for everyone to get to know what's happening" (p. lf1 413).⁹ Liam's positive aspect was finding out about how works were progressing, particularly the practical implementation in the field in relation to the planning undertaken from the office. His positive aspect was also a negative in the sense that the meetings highlighted communication breakdowns between the office and depot staff, however, he felt highlighting the breakdowns led to better running of the department.

Peter described the monthly department meetings as being a time for viewing ideas, problems, concerns, and general topics on an agenda. He described the meetings as taking place in a separate room away from the offices and telephones, and having an agenda that had been formulated from people writing down discussion points prior to the meeting. The manager, Stan, would always chair the meetings and sit at the head. The agenda would be gone through, point by point, and general discussion would be held at the end. Peter described the meeting as, "fairly organised" (p. pm1 160) and noted that minutes were taken. The minutes were taken by Liam. Peter's positive aspect was the opportunity for everyone to air their opinions and views. His negative aspect was the lack of resolution on some issues and the consequent loss of clear direction, particularly when issues were referred to higher levels of management.

⁷ The forming of relationships represents the *socio-emotional* or *maintenance* aspect of meetings that shapes and is shaped by the *task* aspect. (Tyson, 1989)

⁸ Indicative of the coordination function, which is a common function of business meetings.

⁹ Indicative of information sharing and problem solving activities.

Stan described meetings as getting people together, either as a whole group, or when one person would come to speak to him, and also social meetings where two or three might gather and talk. He also referred to the monthly department meetings. These were held to exchange information so everyone knew what direction people were heading in.¹⁰ Additionally, the meetings provided an opportunity for people to raise issues that they hadn't had an opportunity to raise in any other forum. Stan referred to the meetings as "relatively informal" (p. sb1 228). An agenda was begun about 10 days before the meeting. This was organised and circulated by Liam to allow people to add issues to it. Liam then prepared the agenda on the day of the meeting. Stan would begin the meeting, thank people for attending, and then work through the agenda. He described this process as, "we discuss just openly, an open forum if you like, each issue on the agenda, hopefully to resolution" (sb1 237-8). Agenda items raised by persons would be identified with that person, and they would be invited to speak to the issue. Opportunity was then allowed for anyone else to participate. Liam would be asked to note action items and persons responsible, and these would be listed at the bottom of the next agenda. This system of following through sometimes fell down. At the end of the agenda they would have an opportunity for general business. When asked about formal voting, Stan answered that this did not take place. He felt that it had not been necessary as there was "not enough indecision amongst the group at the end of the discussions" (p. sb1 268-9), and that he had felt that they had come to a consensus. When probed about the nature of consensus Stan referred to agreement amongst the people, and that it was assumed that if no-one spoke up to state they disagreed, then it was assumed that consensus had been reached. However, he noted the danger of this assumption, given there may be reasons why a person would not state their disagreement.¹¹

Stan's positive aspect about the monthly meetings was the opportunity for everyone to participate and share information, and that this opportunity existed on a regular basis rather than relying on informal exchanges between staff and manager. His negative was the fact that he tended to dominate through his role as manager and hence chief decision maker. Additionally, he was driving the agenda. He felt that sometimes he should allow others to become more involved. However, he recognised his role as directing the meeting to keep it speedy, and preventing the

¹⁰ A coordination activity.

¹¹ This raises the subjective nature of consensus and that the term may be used as a label for situations where there is no *overt* disagreement in addition to situations where members intrinsically as well as overtly embrace an idea enthusiastically.

group getting sidetracked, and hence extending debate unnecessarily.¹² Another negative was that sometimes issues were raised that would be better handled in a more private rather than public forum. An example concerning personal criticism was given.

Terry referred to the monthly department meetings and also meetings on site with ratepayers. He described the monthly meetings as fairly informal, although he noted that there was a formal agenda and that they would be seated around a table. The informal aspect was that they could talk freely and there were "no restrictions placed on what we've got to say" (te1 351-2). This could result in offending other people but Terry felt that it was necessary to bring out the issues. The agenda for a coming meeting would be distributed with the minutes of the last meeting, usually a week after the last meeting. The agenda was drawn up in the office and would then come to the depot where people could add their issues before returning the agenda to the office. Terry's positive aspects were that the meetings were productive and he was usually satisfied with the outcomes. His negative was the personal inconvenience in terms of interruption to his work activities.

In summary, the monthly meetings were well known phenomena to the participants. There appeared to be a well known structure. This structure included regularity, the same group, an agenda document and a process of agenda execution, the role of chairperson undertaken by the manager, and the role of minute person undertaken by Liam. Meetings would take place in a particular room and last one to two hours. The agenda was formed 10 days prior to the meeting and at the meeting was worked through point by point, with persons identified with items. Discussion would ensue around these points. An opportunity for general discussion was available at the end. Voting was not carried out. Positives about the meetings included productivity, exchange of information, communication between office and depot, everyone being involved, opportunity for airing views and opinions, gaining an overview of the department, forming relationships with colleagues, and problem solving. Negatives about the meetings included the inconvenience to the work schedule, the time involved, the manager dominating, an inappropriate forum for some issues (e.g. personal criticism), lack of resolution and clear direction, and if people were negative.

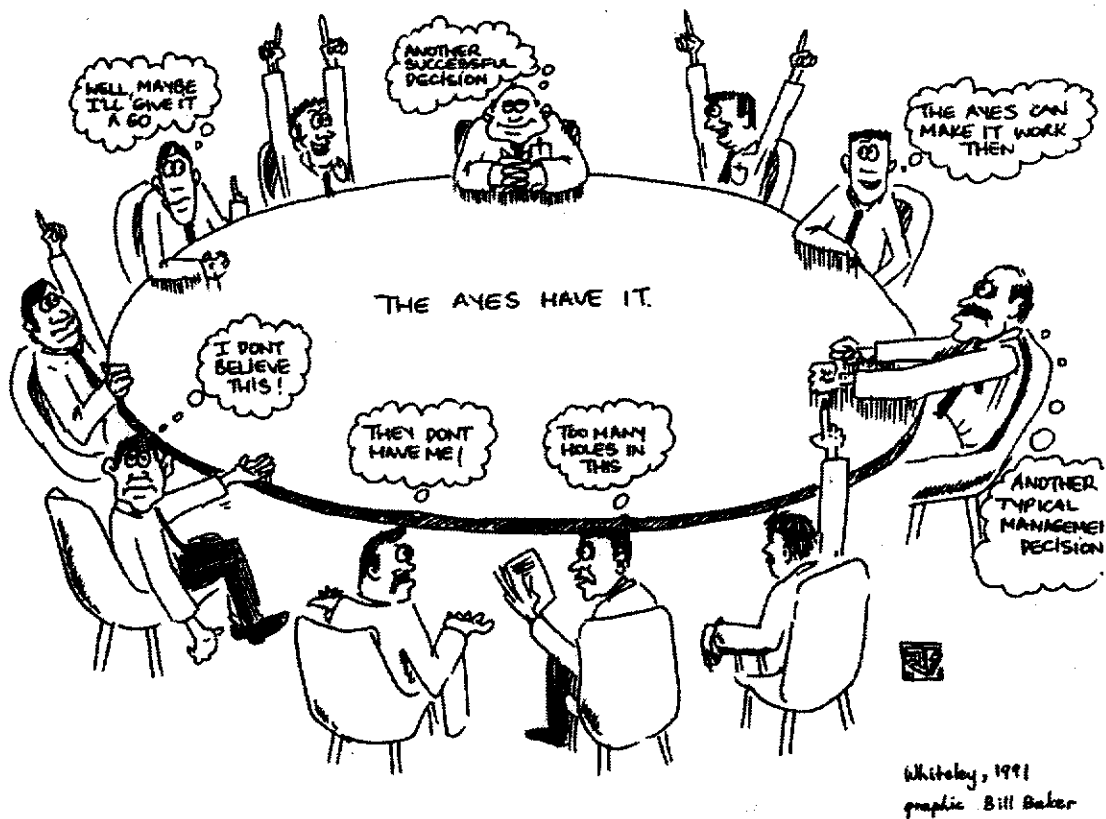
¹² Roles of time management and task focus are activities that are undertaken by both chairpersons of manual meetings and GSS facilitators.

From the research perspective, it was important to gain some understanding of what meetings meant to the participants given that the GSS sessions would likely be interpreted in the light of their meeting experiences. In contrast to student subject studies where subjects are often considered as having "zero group history", the individuals here were well known to each other and participated in structured meetings on a regular basis. Whilst there would be some similarity between the GSS sessions and the group's meetings such as the GSS sessions would involve seven of the nine people who met at the monthly meetings, there would also be a considerable number of new aspects. The manager would not be chairing the meeting. The agenda would not exist in the same way as their monthly meetings, however, there would be a structure to the sessions. The task would be different in that it related to planning for the whole department over a three year time frame rather than discussion of current and near future issues. The sessions would be held away from their organisation. Anonymity would be available, computer technology would be present, and a facilitation team would be present, who at this stage were unknown to the group. Voting or evaluation procedures would be available that were not used in their monthly meetings. Sessions would be somewhat longer, being three hours, as opposed to one to two hours at monthly meetings. A series of five sessions would be directed toward the overall task of planning for the following three years. Additionally, a researcher would be observing at the sessions and undertaking interviews in the workplace after each of the sessions.

6.3.4. Reactions to Graphic of Meeting Situation

A graphic of a meeting situation (Figure 6.2) was used as a prompt to stimulate reaction amongst the participants. This was done as a creative means to get some discussion flowing, as it was felt to be difficult to get participants to talk about meetings without the researcher and participants having had some recent shared meeting experiences.

Figure 6.2 Graphic of a meeting situation



Brian related to the caption, "I don't believe this" in the graphic. He described the problems of local government and the situation where managers would have to enforce council decisions that were unrealistic.

Jackie stated that the graphic related to meetings she had been in and that the captions were typical comments. When questioned about the use of voting procedures in their meetings, she described it as going around the table and asking do you agree or do you have objections. Thus the group did not engage in votes through a show of hands or via a secret ballot.

Ken said that their meetings were more open than described in the graphic, thus reiterating his attitude that their meetings were "open". They would speak up rather than holding back. When asked if everyone was like that, Ken replied that most were, but not all were the same, and some were more reserved. Here there is recognition of varying participation at meetings. Ken felt that the manager encouraged open discussion and that was the way to solve problems.

Liam related to the graphic, and noted that it was rather negative. In this sense he felt it didn't display the positive aspects of their own meetings. Clearly for Liam, their own meetings were more positive. To him the graphic showed a one-sided situation rather than parties working toward a solution.

Peter felt that their own meetings were a lot more organised and better than the graphic portrayed. He did note, however, that there were a few occasions when people didn't take the opportunity to express their views on an issue, and that this could lead to frustration further down the track.

Stan felt he had been to some meetings like the graphic. However, he felt their monthly meetings were not like that. His reason was that his management philosophy was to have everyone participate in making decisions, so that they at least could see the logic of an outcome. He felt that most of their meeting outcomes had general agreement, and that this may have been due to their similar work experiences, and the nature of the tasks, particularly those that were technical in nature.¹³ There were, however, issues such as finance which involved wider issues and thus could result in views such as "another typical management decision". Stan also noted that there were no women depicted in the graphic whereas there were two women present at his meetings. He thought they brought different perspectives to situations.

Terry felt that the graphic was rather more negative than their meetings. They did not have the disgruntled aspect that was apparent in the graphic. Instead they would talk things out rather than leave people unhappy. In some cases, such as finance matters, the manager would have to make the final decision. Terry noted that they did not vote and that decisions were arrived at through discussion. He felt that voting with say "majority rules" caused too much dissension when put into practice, particularly with their type of work.

In summary, five of the seven people noted that the graphic was more negative than their own meetings. Combining the reactions to the graphic, along with comments about the participants' monthly meetings above, and the subjective experience of the researcher in the course of the interviews, the overall impression was that monthly

¹³ There are indicators of cohesion in the group through similar backgrounds, and working on tasks which they had control over, and were technical rather than social judgment situations.

meetings were generally viewed by the group favourably, although there was recognition of some negative aspects.

6.3.5. Planning

Brian, the senior supervisor, described planning in terms of personal daily planning, and also longer term planning. He stated that a small group consisting of the coordinator, the manager, and himself would meet twice a year to review a five year forward plan that dealt with equipment and maintenance. The plan was formed via group discussion between the supervisors and the office staff. His positive aspect about planning was knowing what you were doing. Brian's negative aspect was having to change the plan so often to fit the environment, that it sometimes seemed that planning was not worthwhile. A good plan was described as one that got the job done.

Jackie described planning as scheduling for the future. The scheduled planning sessions involving a whole department, were something she had not been involved in before, and thus the sessions at the Curtin facility would be a new experience for her. She felt that there was more opportunity to be involved in planning in a small department. Her positive aspect of planning was providing a guide to achievable steps. Her negative aspect was if the plan was inflexible.

Ken also described the necessity for planning to be flexible. Provided that you were always heading towards the main goal, he felt there needed to be flexibility how that goal was to be achieved. Ken felt that the department was on track regardless of the existence or otherwise of a formal plan. This he attributed to the people and their attitude.

Liam spoke of planning with regard to projects he had been involved in. However, at the departmental level he had not previously been involved in planning. In fact, he had believed that planning was the responsibility of the management team. However, now having the opportunity to be involved in the sessions at Curtin, he felt that it was important to get the input of people like himself and the depot staff. In the case of their relatively small department, he felt there was opportunity to involve everyone. His positive thoughts about planning were being stimulated by others and learning about others' job roles. His negative aspects were that he might not agree

with others' work approaches, but at least he could use the knowledge of the way they worked to avoid getting in their way.

Peter described planning as getting together the people involved, gathering their thoughts, advice and experiences, and then working out a strategy to produce the desired end. He regarded successful planning as planning such that everyone has a good understanding of what is going to happen. In his experience of planning at Curlew, including reviews of five year plans, the processes had taken place through discussions in one-to-one interactions and group discussions, and these were then documented. He felt it was an informal process.

Stan commented that he'd had little experience of the planning that they were about to undertake at Curtin. His experience had been on the job and he had difficulty distinguishing between strategic direction, planning, and daily activities. This was partly why he had attended a recent management course so that he could learn more about the processes. When questioned about structured planning, he felt that he had little experience, and that perhaps he had undertaken planning intuitively, without knowing how or why.

Terry spoke of personal daily planning and also planning for the year. The latter was undertaken by the manager and coordinator, particularly as they had access to the budget. In Terry's previous job, they had undertaken reviews that had resulted in restructuring that affected people dramatically. He was interested to see how the coming planning sessions would develop as he had never been involved in anything as intensive. His positive aspect about the planning was that it was necessary, given their new manager, and expansion in demand for their services. He was aware that the manager had some ideas for change and these needed to be talked about and decided upon. His negative aspect was that he could see outcomes of changes that would reduce personal interaction between field staff and ratepayers, reduce security, and reduce the quality of public relations. These would be traded-off against cost effectiveness.

In summary, the participants had experienced planning in a variety of ways and had broad notions about its nature. Flexibility was a desirable characteristic mentioned by Brian, Jackie, and Ken. Liam and Jackie both noted that in their relatively small department, there was more opportunity to involve staff. Planning within the organisation included a five year forward plan dealing with equipment and

maintenance. This was reviewed by the coordinator, manager and the senior supervisor. Additionally, the manager and coordinator planned the annual budget. Planning direction for the whole department, for a long time period, and using a structured process, was something new for all the participants. In particular, the manager felt that his past planning efforts had been more intuitive rather than structured. Interestingly, Terry displayed a strong awareness of the context - the new manager, his ideas for change, and the increased demand for services - and possible outcomes of the proposed planning - trade-offs between quality and cost effectiveness.

6.3.6. Facilitator

The participants were questioned about their understanding of the term, *facilitator*.

Brian had not heard of the term *facilitator* before.

Jackie regarded *facilitator* as an avenue for achieving goals, including, but not restricted to, a person or a role.¹⁴

Ken did not have a meaning for *facilitator*.

Liam regarded *facilitator* as just another title with no particular meaning for him.

Peter equated *facilitator* to chairperson in terms of someone who organises meetings, however, he did not personally use the term.

Stan had experienced a *facilitator* of a group process at his previous job. The *facilitator* was hired by his organisation and he had volunteered to help with the process. The process had been a disaster, caused by the reaction of the staff involved to participative planning and performance review. Stan described a good *facilitator* as one who could win the confidence of the participants, a person who the participants felt understood what they were talking about and was interested in what was being discussed. A poor *facilitator* would be someone who was internal rather than external to the group and thus had a strong vested interest in the content and

¹⁴ This is similar to dictionary definitions of *facilitate*; "to make easier or less difficult" and/or "help forward" (Delbridge, 1985, p. 629).

outcomes. Additionally, a poor facilitator would be someone who was "pure academic" (p. sb1 541) - not interested in the people, only in the process. Stan suspected that Darryl would be a good facilitator because he felt that Darryl could win the confidence of participants and get them to feel confident.¹⁵

Terry regarded a facilitator as someone who could get things done within the structure they had to work with. He felt he could not elaborate further.

In summary, only Stan had a developed concept of a facilitator in the sense of a GSS process facilitator for group activities. This was based on some personal experience. Three participants (Brian, Ken and Liam) did not have a meaning for facilitator. The other three participants (Jackie, Peter and Terry) had limited thoughts about facilitators, likely through a lack of personal experience.

6.3.7. Chairperson

In contrast to the limited reaction to the term facilitator, it was expected that participants would be familiar with the role of chairperson, particularly through their monthly department meetings. These existing perceptions would likely be relevant to perceptions of the GSS facilitator given that the roles could be construed as overlapping.

Brian described the chairperson as the "person who chairs the meeting" (p. by1 532). He viewed such a role as important and that if meetings were not chaired properly you "achieve nothing but a waste of time" (p. by1 544-5).¹⁶ When asked about proper chairing, he stressed the role of a format or agenda that was strictly adhered to by the chairperson. This included the process of apologies, minutes from previous meetings, agenda items and anything else.¹⁷ In discussion, Brian distinguished an agenda for the meeting and the chairperson's agenda of how he or she was going to run the meeting. In the above sense, Brian seemed to be getting at the need for a design or structure to a meeting in order to achieve things. The chairperson played an

¹⁵ Stan displayed a positive attitude toward the facilitator who he had met at the management course previously. It seems possible that assessment of the facilitator is a key aspect in a prospective client's decision to undergo an externally facilitated process.

¹⁶ Ineffective time management is a key complaint concerning meetings (Mosvick & Nelson, 1987).

¹⁷ Thus for Brian, *structure* appeared to be a key to an effective meeting.

important role in this design. This could be seen as a similar role to that played by a GSS facilitator - a "designer of meetings". Brian noted he had not chaired meetings himself and that the manager, Stan, chaired their monthly meetings.

Jackie described a chairperson as someone who is able to direct and to some extent control the process of a meeting so that it flows, the steps are clearly gone through, and each of the matters are resolved.¹⁸ She elaborated on the need to take time in meetings to provide explanation. Her personal experience of Stan's chairing was good, and she noted the balance between keeping the meeting headed in a direction but allowing people to speak their mind and get their point across.¹⁹

Ken, like Brian, described the chairperson as "the bloke that chairs the meeting". (p. kg1 577) and that the role involved controlling and running the meeting. He noted a variety of experiences of chairpersons, observing that chairpersons were all different. Ken drew attention to the aspect of separating the chairing role from the role of manager, as a means of getting participants to speak more freely. He had found this successful when running meetings for his own staff.

Liam described the chairperson as "the person who will override a meeting, keep it in order, try and keep a bit of a balance between the for and againsts people in a discussion, try to keep the whole thing on an even keel" (p. lf1 682-5). Liam commented that a good chairperson was one who was impartial, and kept his or her own ideas and feelings about a topic to themselves when two sides were talking. A poor chairperson was one who could not keep control, and would allow things to get out of hand or let one side dominate without giving the other a fair hearing. In this sense Liam was suggesting the role of chairperson in managing a dialectic and being impartial and fair in that process.

Peter described the chairperson as a more familiar term than facilitator and included the functions of running, organising, chairing, controlling and giving direction in a meeting. A good chairperson was described as someone who gave clear direction, held the meeting together, kept things flowing, and gave some positive feedback at the end of a meeting. Peter mentioned "call[ing] upon individuals one at a time to [have] their say". "Having a say" is similar to Liam's statement "fair hearing" and Jackie's "allowing people to speak their mind" and has a common theme that might

¹⁸ This sounds like activities of a GSS process facilitator.

¹⁹ A balance between task focus and participation.

be described as "opportunity for all" - a democratic principle.²⁰ Peter related a poor chairperson to the graphic of the meeting situation (Figure 6.2) as one who couldn't hold a meeting together such that people went their own way, and little was achieved.

Stan described a chairperson as someone who guides a meeting and has control over a meeting. A good chairperson was someone who understood the rules of the meeting and could advise participants if they were operating outside of the rules. Additional characteristics were being able to keep people on the topic, and protect participants. The latter was related to protecting participants from personal attack and keeping participants to the business of the meeting.²¹

Terry described a chairperson as someone who can direct and control a meeting, keep it on agenda and on time. Terry elaborated on the control aspect in terms of a chairperson stopping a situation where the meeting was on irrelevant subjects and bringing the meeting back to the agenda.

In summary, controlling and directing the meeting were common terms used among participants. Agenda, topic, or business of the meeting was another common theme. The flow of a meeting was mentioned by two of the participants. Democratic principles were alluded to by two participants and rules were mentioned by one. An overall impression was gained that there were ways in which a meeting should be run, that these contributed to a "good" meeting (on track, allowing participation, fair, on time) and that a chairperson had a key role in this process. If the chairperson did not adhere to certain ways of operating then meetings could get out of hand and off track. The chairperson seemed to play an important role as a manager of meetings. No one mentioned their current chairperson, Stan, in a negative light and one participant, Jackie, thought Stan was a good chairperson.

²⁰ Given that GSS technology can be used to promote opportunity to "have a say", one would expect this characteristic to be looked upon favourably by these participants.

²¹ In GSS activities, anonymity is provided via the technology to provide some protection. However, during discussion, like Stan's chairperson, it is the GSS facilitator who can provide some protection from personal attack.

6.3.8. Consultants

Given that the participants would be experiencing a consulting situation, it was potentially important to collect data regarding their views of consultants.

Brian dealt with consultants in his work and he described the consultant's role as, "oversee[ing] a complete project from start to finish" (p. by1 592-3). He felt that a consultant had a very responsible position. His personal experience of consultants at Curlew was that they were overpaid and did not act in the best interests of the organisation. Good characteristics of a consultant were stated as knowledge of what was going on and willingness to pass on that information and keep one up-to-date. Poor characteristics were described as lack of supervision of projects, particularly the field activities.

Jackie described consultants as persons who provided a service - either knowledge or a physical service. Jackie noted that consultants were paid a lot of money and did not undertake the detailed work, rather they presented broad outlines. She noted frustration because parks and reserves management was not recognised as a profession. Even though through experience the staff knew how to develop projects, they would still hire a consultant. The staff would state everything that was needed, and the consultant would charge lots of money. A good consultant was described as one who provided what the client required, provided justification, and made an effort to communicate with the client.

Ken had a mixed experience of consultants. His negative aspects included expense and lack of results, and like Jackie he noted that consultants could take credit for expertise that was already present in the organisation. "Glossy presentations" were cited as a factor that would override the content. Indeed, Ken's positive aspect of using consultants was to backup one's own opinion in order to help convince others within the organisation.

Liam described consultants as "persons outside the organisation that would give, hopefully, an educated opinion, drawing or whatever on a particular task" (p. If1 712-14). Liam described a negative aspect about consultants as being that they did not appreciate all the problems associated with a project, and thus would fail to come up with a complete solution. Other negative aspects were consultants who did not follow their brief, and also the likelihood of consultants convincing senior

management to fund plans through their presentations, rather than the substance of the plans. In describing good consultants, Liam stated that they needed to do their research, do what they were contracted to undertake, and involve the department staff.

Peter described consultants as, "outside business groups that may be able to give some sort of reporting or feedback or whatever the topic might be, helping out in the planning process" (p. pm1 340-42). Peter had experienced irrigation and tree consultants and mentioned that they would undertake investigations, provide information, justification and documentation. He described a good consultant as one that provided relevant information and could come up with a strategy to achieve an end result. A poor consultant was described as one who provided irrelevant information or lots of documentation that had little meaning. This could result in a situation where the department employee would end up having to undertake the work.

To Stan, a consultant was someone employed externally to the organisation, who would provide specific information on how to undertake a task. Stan had mixed experiences of consultants, some good and some bad. His negative experiences, particularly with regard to landscape architects, were that they would not stick to their contract and would seem to take any opportunity to expand activities, and hence the fee. This meant that contract arrangements had to be carefully controlled. Stan described a good consultant as someone who had the relevant skills the organisation was requiring and was honest about what he or she could achieve within a given budget.

Terry referred to consultants as specialists who brought expertise to a problem. They could be used where the organisation did not have the expertise, or where another opinion was required, in say legal or safety matters. Terry described a good consultant as one who did his or her research, got to the point and gave a prompt report. They needed to be well qualified and competent in the field of expertise that the organisation required. Money was mentioned as an issue. A poor consultant was described as someone who gave more than was required and charged accordingly.

In summary, a consultant was generally perceived as a person external to the organisation who was hired for their expertise in a particular area in order to achieve some goal or requirement. Requirements, brief or contract was a common theme.

Budget, fees, money and charging was another. Consultants who solved problems and achieved goals according to requirements or within contract terms, and communicated or involved clients were considered in a positive manner. Those that did not deliver the required service, emphasised presentation rather than content, gave irrelevant information, and left the organisation to do a lot of work, were perceived poorly. The high fees that consultants generally charged highlighted failures to deliver what was expected or required. The responses of participants indicated a cautious attitude toward consultants.

6.3.9. Computers

Views of computers and computer technology were considered important as the GSS sessions would involve the participants using PCs. In the course of the first interviews, the researcher became aware that half the participants were PC novices.

Brian felt there was definitely a place for computer technology. In refining this view he claimed that they could not replace a person in the field, however, they could help in managing, facilitating, and organising the rest of the system. Although he was not currently using PCs, hands-on, in his work, he could see a role for facilitating work with contractors, particularly the handling of financial transactions. He noted that the department had a computerised irrigation system for the parks and reserves. In fact, he had a printer in his office that provided information. On the one hand, he claimed the computer system was fantastic in providing information on overnight faults, however, it did not do all that they wanted it to, and an example was the inflexibility of the reporting frequency. He felt he was not educated enough to know where he could use a computer in his office, however, he thought there were places it could be used. His personal experience of computers had been at "school" (likely adult education or trade school) and playing at home. He described the computer as a "typewriter" (p. by1 716) and a "toy" (p. by1 725) and that these sorts of things were new to him. In terms of keyboard skills he noted his lack of efficiency.

Jackie described computers as "excellent tools" (p. jt1 410), but that they were just that - "tools". She noted that some people gained satisfaction from simply keeping up with technology, however, she felt that computers did not make things much easier unless you were dealing with lots of data manipulation. She did use computers on a daily work basis. In her previous job, this had involved computer-aided-design

drafting, however, now she used computers for monitoring the irrigation system and for doing lists and spreadsheets. She did not have her own PC but rather used a shared resource. When asked about the positives and negatives of computers, she noted that "it depends how you use it" (p. jt1 465) and that people rather than computers had to improve work practices. However, she observed that the computer may be an avenue to facilitate work practice improvement. Jackie described some people as being able to take advantage of computers to broaden, as well as organise, and make their work neater, whereas others could waste time and use computers for tasks that could be better done manually. When asked about comfort with computers, she qualified this as referring to being comfortable only with some things, and that if she had a computer at home and could become familiar with particular software, then she would feel more comfortable about using that software at work.

Ken was quite clear in stating "I don't like computers" (p. kg1 669). He felt that people ran the world and not computers. Furthermore, he felt "computers only make work" (p. kg1 681). This he related to the myth of the "paperless office" and his belief that every computer you had was associated with more forms, and that "forms only make work, they don't do any work" (p. kg1 683). Ken's experience of computers at work was the computerised irrigation system which provided print-outs at their office. He felt that its usefulness was "half and half" (p. kg1 722) as it did not properly represent what was occurring in the field. He did not have a computer at home.

Liam liked to think that computers and computer technology meant advancement. However, he noted that they could also mean frustration and annoyance. This he related to the computerised irrigation system which he claimed resulted in frustration for the supervisors and field staff. His personal experience of computers was positive in that he felt they had halved his working time, and he could present things in a better format than in the past. He used a portable laptop which he could take home. He noted the positive aspects of having complete control over work and that when tasks were completed - "it looks good, you feel good, you feel confident" (p. lf1 790). He used spreadsheet software. When asked about negative aspects of computers he answered, "nothing with computers" (p. lf1 808) but mentioned the lack of standardisation on software in the City of Curlew, and his own lack of knowledge about the potential of particular software.

Peter felt he had a fear of computers and computer technology, through lack of experience. He had seen others use them and thought that they could produce excellent results. His hands-on use of computers at work had been, "very very basic" (p. pm1 405) limited to finding out account numbers and where monies had been expended. His positive aspects of computers were the storage of information and as time saving devices. His negative aspect was the time to input relevant information. Additionally, he felt that the department's work involved lots of discussion and hands-on work such as maintaining ovals, watering lawns, and growing trees. This meant that time could not be found for computer work.

Stan described computers and computer technology as "very exciting" (p. sb1 633). However, he also found it "daunting" (p. sb1 634) in that he had never had an education in the use of computers, and had only recently gained some computer literacy. Stan said he would like to have the time to learn more about them. Stan had a PC on his desk which was connected to an organisation network. He used the computer for word processing, email, and calendaring on a daily basis. One of his motivations for taking on his current position had been the computer system available at Curlew. His positive aspects about computers were efficiency, converting data to information, budget preparation, and associated time savings. One of his negative aspects was the possibility of people getting sidetracked and creating more work because they liked playing with computers. Stan gave the example of spreadsheets or drawings that could be done manually in much less time, particularly when only a certain level of quality was required. He also mentioned that computers could be impersonal for people who were not used to dealing with them.

Terry stated that computers and computer technology was a field in which he was lacking and that he had not touched a keyboard in five years. His concern was reflected in the quote, "a couple of us [referring to supervisors] will have problems even in starting the computer up and typing whatever in it is you require typed in because we don't have hands-on use in our situation as supervisors" (p. te1 583-86). He described feeling lost, frustrated, intimidated and inadequate in relation to having to rely on others to retrieve information on computer for him, rather than being able to do it himself. He wanted to be able to use computers and could see that they would be used more in the future. Additionally he thought they needed to be able to use computers to carry out daily tasks more efficiently. He saw computers as a tool that could be used to carry out his job better, but at the moment he was not capable.

He noted that in the five years since he last used computers, things had changed significantly, and he had lost any keyboard skills that he did have.

In summary, there was a diversity of views about computers and computer technology. Ken was at one extreme in stating that he did not like computers indicating a strongly held, negative attitude. At the other extreme, Liam was the most positive. In terms of usage, Stan, Liam and Jackie used a keyboard on a daily basis. Ken had not used a keyboard, and Terry had not done so for five years. Brian occasionally used a computer although not at work. Terry expressed concern with regard to the computer skills of himself and the supervisors with respect to the coming sessions, however, he also expressed a desire to learn. Peter described some fear with respect to computer technology based on lack of experience. From the researcher's perspective, Stan, Liam, and Jackie represented more experienced and skilled computer users, whereas Brian, Ken, Peter, and Terry could be regarded as computer novices.

6.3.10. Expectations and Worthwhile

The participants were asked their expectations for the coming planning sessions at Curtin. In a related question they were asked to picture themselves at the end of the sessions and describe what they thought would have made the sessions worthwhile or not worthwhile.

Brian's expectations were that he was looking forward to streamlining the system particularly with regard to staffing so that "everybody is functioning at ... their best ability" (p. by1 746-7). A desired outcome was a "good system" (p. by1 748). He stated that they needed to look at how they currently functioned as well as the direction they were going in, particularly as there were things he didn't like about the current situation. When asked about what would have made the sessions worthwhile, Brian reiterated - a work system that would utilise his staff in the best way.

Jackie responded to the "worthwhile" question and stated getting her view across, understanding what others' views and concerns were, and putting in place a planning program. She felt that if there was no direction then there was no point to what you were doing. Jackie stated the sessions would not be worthwhile if they did not achieve something. In elaborating achievement, she mentioned a general overview of

where they saw the department going, and issues and areas that needed to be looked at. Jackie could not see any disadvantages in having the sessions, even if it highlighted problems in their communication.

Ken claimed he had no expectations for the sessions but then corrected this to state he expected to be involved and he hoped that whatever came out of the sessions was positive. When asked about what would make the sessions worthwhile, Ken mentioned a plan but returned the question to the researcher as though the researcher was undertaking the sessions. The researcher agreed that a plan was an outcome, and Ken described his thoughts regarding desirable attributes of a plan including flexibility, goals, and stages. He noted planning for slow, gradual growth rather than large leaps.

Liam described his expectations for the sessions in terms of determining a direction for the department. He was hopeful that there would be one direction, but that it would also incorporate the varying aims amongst the people, depending on their job function. With regard to the "worthwhile" aspect, Liam felt that they had never asked "these questions" before and that would result in different information being drawn from each person. Additionally, there would be a report and they would see lots of new ideas that they hadn't previously thought of, either individually or as a group. In terms of negative aspects, Liam noted the possibility that one may not agree with the direction, however, he felt both he and the group were flexible and hence could cope with that situation.

Peter's expectations for the session were that he was looking for a clear direction, and leadership in that direction, so that everybody knew what was required of them. He stressed that rapid changes had been taking place, with growth in their workload and raised expectations of ratepayers and management. His "worthwhile" aspects were getting together, airing their views, getting a better understanding of their needs, making things more streamlined, and having something to go on. His negative aspect was if the ideas and information was not used, and if it was shelved and put away and forgotten.

Stan responded to the "worthwhile" question by stating that if the people participating felt it had been worthwhile, then he would be happy. This was regardless of whether people agreed on an outcome or had a clear outcome. As a

contrast, Stan felt he would be very disappointed if the participants felt it had been a waste of time for them, and that they would not participate in such a process again.

Terry stated he was unsure about his expectations. However, he mentioned a decision on where they were going, a recommendation on where they should go, positives and negatives about their structure, and possibly a better management structure for their daily activities, particularly with regard to workloads. He had doubts as to what he could talk about for the 15 hours of the sessions but felt that could be better answered after experiencing the first session. With regard to the sessions, he stated that "we all feel comfortable with it, we don't feel its been forced upon us by senior management" (p. tel 679-681). Having a say, being involved, and understanding the reasons for decisions made, was valued by Terry.

In summary, in contrast to the others, the manager Stan would be happy with the sessions if his staff felt it had been worthwhile. Jackie, Liam, Peter and Terry all mentioned the theme of "direction". Ken mentioned it in the form of a goal, aim or target. Brian had a fairly particular view, in that he wanted a better staff system for his field staff. Being involved, having a say, or airing views was a common theme mentioned by Jackie, Ken, Peter and Terry. A plan or planning program was mentioned by Ken and Jackie. Other aspects such as understanding others (Jackie) , something positive (Ken), new ideas (Liam), leadership (Peter), and understanding reasons for decisions (Terry) were specific to individuals. Interestingly, Terry felt they had not been forced into participating in the sessions.

6.3.11. Client Sponsor Motivations

The client sponsor, the manager Stan, was asked what his motivations were for employing external consultants from Curtin.

Stan stated that in the twelve months since he had been at Curlew he had wanted to look at restructuring of the department as he felt that things weren't the way they should be. He had some discussion with staff and then backed off as he perceived that they felt threatened. However, there was some agreement from staff that a process needed to be undertaken. Stan did not want to facilitate the process himself because he had a vested interest in the content, and thus had been looking for someone else to facilitate the process. He had not found anyone suitable within his

organisation and hence was considering the need to employ a consultant. Stan had attended a management course at Curtin which included exposure to strategic planning processes. He also met Darryl who was facilitating the course. Darryl was a facilitator with the Strategic Planning and Decisions Unit at Curtin. Having mentioned to Darryl that he was interested in the strategic planning process, but could not afford the full commercial rates, Darryl suggested there were opportunities with student projects. This had led to initial contact between the researcher, and the manager, Stan. Stan had noted that there would be a certain amount of pressure to fit in the planning sessions as well as their normal workload, however, he stated "It's going to facilitate the process and that's what we want to do" (p. sb1. 789-90).

6.3.12. GSS Experience

The researcher knew that aside from the client sponsor Stan, the participants had no exposure to GSS technology. Given this lack of exposure, the researcher decided not to ask questions directly that included the term GSS, so as not to create perceptions that were primarily a result of the interaction with the researcher rather than based on the normal consulting experience. The previous questions about computers, planning, meetings, chairpersons and facilitators had established the participants' prior experience of aspects indirectly related to GSS consulting experiences.

However, the client sponsor, Stan, was known to have had some exposure to GSS technology through a management course he had attended at Curtin. Hence it was considered relevant to collect information on his experience of GSS. Stan described his experience of GSS as, "I haven't had any other than the ten minute session that I did, well hour session that I did with [the course facilitator]. I think you'd call that a group support." (p. sb1 856-8). He repeated the statement, "I haven't had any" several times so it seemed his perception of GSS was not formed beyond a recognition that his experience was negligible.

6.3.13. Summary

The first interviews allowed the researcher and participants to build some rapport, hopefully such that future interactions would be more open. Additionally, the interviews provided a small window into perceptions of the seven participants prior to attending the GSS sessions at Curtin University. Findings were:

- Group decision making was regarded as involving people, communicating, discussing, sharing ideas, opinions, views, and expertise. This could take place in a variety of situations including one-to-one, a small group, and at formal monthly staff meetings. The positive aspects were the better results achieved, participation, and being aware and feeling a part of the organisation. The negative aspects included the time and effort involved, personality attack, unwillingness to adjust to others, lack of clear direction and no consensus decision - either through large group size, or disagreement.
- Meetings in the form of the monthly department meetings formed a common experiential base for all the participants. There appeared to be a well known structure. This structure included regularity, the same group, an agenda document and a process of agenda execution, the role of chairperson undertaken by the manager, and the role of minute person undertaken by Liam. Meetings would take place in a particular room and last one to two hours. The agenda was formed 10 days prior to the meeting and at the meeting was worked through point by point, with persons identified with items. Discussion would ensue around these points. An opportunity for general discussion was available at the end. Voting was not carried out. Positives about the meetings included productivity, exchange of information, communication between office and depot, everyone being involved, opportunity for airing views and opinions, overview of department, forming relationships with colleagues, and problem solving. Negatives about the meetings included the inconvenience to the work schedule, the time involved, the manager dominating, an inappropriate forum for some issues (e.g. personal criticism), lack of resolution and clear direction, and if people were negative.
- Reactions to the graphic of the meeting situation were generally that it painted a more negative situation than their monthly meetings. Their monthly

meetings were described as more organised, people speaking up, open discussion, and people not leaving the meeting as unhappy as the graphic appeared. It was noted that formal voting as in, "hands up, the ayes have it" did not occur in their monthly meetings. Rather, issues were dealt with through discussion, which might involve going around the table to gather peoples' opinions. It was noted that while most spoke up, some were more reserved.

- The planning context for the GSS sessions - planning direction for the whole department, for a long time period, and using a structured process, was something new for all the participants. Flexibility was a desired characteristic and it was noted that in the relatively small department, there was more opportunity to involve staff. Planning within the organisation included a five year forward plan dealing with equipment and maintenance. This was reviewed by the coordinator, manager and the senior supervisor. Additionally, the manager and coordinator planned the annual budget. Terry displayed a strong awareness of the context - the new manager, his ideas for change, and the increased demand for services; and possible outcomes of the proposed planning - trade-offs between quality and cost effectiveness.
- Only Stan, the manager, had a developed concept of a facilitator in the sense of a GSS process facilitator for group activities.
- Chairpersons were a common experience for the participants as they had all experienced the manager chairing their monthly meetings. Directing and controlling the meeting were common themes associated with chairpersons.
- All of the participants had experienced consultants. These experiences varied. A common theme was that consultants were external and provided expertise. Concerns about the money they charged and the service they provided in relation to their contract were expressed.
- Computer experience fell into two groups - novices and users. The users were Stan, Liam, and Jackie. The novices were Brian, Ken, Peter, and Terry. Some anxiety in relation to the use of computers in the sessions was expressed by Terry and Peter. A dislike of computers was expressed by Ken.

- Expectations and aspects of what would make the sessions worthwhile were varied but aside from Stan and Brian included a common theme of determining a direction for the Department. Involvement and having a say were also shared by participants. Brian's concerns related to his specific staffing problems. Stan was happy provided all his staff felt the sessions were worthwhile.
- The contract between the Curtin Strategic Planning and Decisions Unit, the researcher and the client sponsor Stan had arisen through motivation on the part of the client to obtain an external facilitator for a planning process and then an opportunity that presented itself at a management course.
- In terms of GSS experience, the group were novices with the exception of Stan who described himself as a novice based on his brief exposure during a management course.
- Informally, the researcher got the impression that group activities in the department were effective and the participants were looking forward to the sessions at Curtin. The computer novices had some reservations pertaining to computer use.

The sequence of events from here on, was that the seven participants would attend five GSS sessions at Curtin University, directed toward planning their department's future direction. In the two days following each session, the researcher would undertake semi-structured in-depth interviews focused on the GSS activity. These post-GSS interviews are the substance of the following section.

6.4. Post-GSS: Interviews Two to Six

6.4.1. Introduction

The following descriptive summaries represent responses to common prompts or questions in each of the post-GSS interviews.

The descriptive summary is presented for each participant and each post session interview. The summaries are presented in longitudinal order and then further

summarised across time for a given participant. For example, the responses of participant Brian, with respect to "overall" impressions of a session are summarised for each of the sessions he attended, session one, two and three. A brief summary across the three sessions is then presented.²²

Comparisons are made across participants for a given session, in order to illustrate shared themes. To remind the reader of the tasks undertaken in each session, Table 5.2 is repeated below as Table 6.1.

²² Brian and Peter were two participants who did not attend all five GSS sessions. Brian, attended the first three, and was then on long service leave. Peter did not attend the first session, as he was on paternity leave.

Table 6.1 The GSS script. MeetingWorks modules are in brackets and italicised.

-
- **Session 1 “The Now”**
 - Brainstorm SWOT (*Brainstorm*)
 - Discussion and Organisation of SWOT (*Discuss/Organise*)
 - Rate SWOT (*Rate*)
 - **Session 2 “The Desired Future”**
 - Brainstorm of Desired Future (*Brainstorm*)
 - Discussion and Organisation of Desired Future (*Discuss/Organise*)
 - Rate Future Desires (*Rate*)
 - Desired Future Statement (*Word processor*)
 - **Session 3 “Strategies”**
 - Brainstorm of Strategies (*Brainstorm*)
 - Discussion and Organisation of Strategies (*Discuss/Organise*)
 - Initial Brainstorm of Criteria to evaluate Strategies (*Brainstorm*)
 - Initial Discussion and Organisation of Criteria to evaluate Strategies (*Discuss/Organise*)
 - **Session 4 “Evaluation of Strategies”**
 - Discussion and Organisation of Criteria to evaluate Strategies (completed) (*Discuss/Organise*)
 - Weighting of Criteria (*Criteria Weighting*)
 - Evaluation of Strategies on Criteria and Analysis (*Weighted Factors*)
 - **Session 5 “Action Plan”**
 - Brainstorms on neutralising weaknesses and threats (*Brainstorm*)
 - Beginning the Action Plan
 - » Brainstorming an extra 6 dimensions to Rationalisation strategy (*Brainstorm*)
 - » Rating of Rationalisation dimensions (*Rate*)
 - » Activities to begin 6 of the 17 dimensions of the Rationalisation strategy (*Discuss/Organise*)
-

Note that sometimes a participant was not directly questioned about a particular topic, say group interaction. These cases are noted in the following sections. This was due to the nature of the semi-structured interview. At times the interaction between researcher and interviewee would dictate the course of questioning, rather than the list of questions. However, questioning such as that described in the following section was always carried out.

6.4.2. Overall

The "overall" prompt was the opening prompt of each interview. The interviewer asked for the participant's overall impressions of the session via questions like overall, best/worst, pluses/minuses, and/or improvements. These responses were considered particularly important as being first responses they had the quality of freshness.

Brian's response to positive aspects about the first session related to everyone talking, getting everyone's ideas, different opinions, and the difference in importance placed upon issues by different people. "Everyone" appeared an important theme. Brian's negative he regarded as more a positive and related to disagreeing with comments made. Brian had difficulty with answering a question regarding improvements as he felt he was a novice, the situation was novel and he just didn't know. He could not recognise anything that stood out. He felt the session was conducted professionally, the speaker was excellent and the format was good. He stated that he "thoroughly enjoyed" (p. by2 100) the session.

With respect to the second session, Brian's positive aspect was that they were narrowing down and getting to the "nitty gritty" (p. by3 55). Additionally, they now had a direction that was agreed upon. This direction existed as a statement. Brian spent some time discussing the process by which they had come up with the statement, emphasising the time they had spent, the involvement and feedback from everyone, the role of the facilitation team in helping with the statement construction and a sense of ownership. The sense of ownership was indicated by statements that used "we" such as, "which was exactly what *we* want to happen, which is exactly how *we* want to be seen in three years time" (p. by3 119-120, [italics added]). As with the first session, Brian could not see any drawbacks to the session stating that things were being done very well and the format was the same as the previous session.

Brian's response to the third session was in contrast to the responses for the previous sessions. "Lost" (p. by4 5,13) was the term used and was related to lack of understanding, lack of comprehension, not being able to keep up, and not knowing what they were trying to achieve. This theme of being lost was continued throughout the rest of the interview, and is analysed later as an important phenomenon.

Brian was absent for the fourth and fifth sessions on long service leave. This had been known prior to the conduct of the GSS sessions. Whilst not ideal for ownership of the process and later implementation, it was mutually agreed between the manager, Brian, and the facilitation team that they could manage.²³

In summary, Brian was generally positive about the first and second sessions. The positive aspect of the first session was with regard to everybody sensing everybody else. The second session was positive with respect to achieving a direction and a statement that everybody agreed upon. The third session, perceived negatively, was characterised by feeling lost.

With regard to the first session, Jackie felt that positive aspects included the identification of the SWOT, the coverage of most things, and "most people [getting] a general idea of what everybody else thought" (p. jt2 12-14). She noted that one person had been quiet. This she felt may have been due to a conflict between the person and another in the group.²⁴ Jackie's negative aspect included requiring more time to spend on items, however, she noted that time was a limiting factor. Additionally, she felt that the "lady who was doing the typing [the chauffeur] " (p. jt2 24) had not always captured what they intended.²⁵ Jackie could not suggest any improvements. With respect to spending more time, she referred to clarifying points and said her understanding was that they would be dealt with in more detail later. She reiterated that all things had been raised that needed to be raised. Jackie had a perception of the supervisors that they found meetings and administrative things not worthwhile and thus would have found spending more time clarifying things, a waste of their time. She was unsure whether a communication gap existed between the supervisors and the office staff.

Jackie's response from the second session was that it moved along well, because people were familiar with the format, comfortable with being there and comfortable with the way things were going. This was contrasted with the first meeting where she claimed people were unsure with regard to why they were there, what they were

²³ Changing meeting membership is a reality of organisational meetings and teams (McGrath, 1991). Whereas experimental studies usually seek to control meeting membership, often unsuccessfully, field studies embrace variable meeting membership as a natural characteristic of ongoing group work.

²⁴ From the researcher's observation of the session and other interview feedback, it was clear that the person in question was Liam.

²⁵ This refers to the discuss/organise phase where the chauffeur constructs an outline whilst the facilitator directs the process and participants publicly discuss previously brainstormed ideas.

doing, and how it was going to go. Jackie did not have any negative aspects about the session.

Jackie was initially vague about the third session, which may have been due to the fact that the interview with her was held following a weekend. Her statement was, "a bit more relaxed and the next logical step to take. Yes it was good." (p. jt4 5-6). Examination of later parts of the interview revealed that she had enjoyed "being able to prioritise the things" (p. jt4 20), and that things "gelled quite well together" (jt4 38). Jackie said "I think everybody was feeling a bit more comfortable by the end of the session" (p. jt4 39-40). She did note that there was a "cold start" (p. jt4 40) to the meeting and most people "went completely blank" (p. jt4 44).²⁶

Jackie's response to the fourth session was that she was generally happy with all the sessions, enjoyed them, and got lots out of them. She was also much more comfortable in the sessions than what she was in the interviews. It seemed that this discomfort may have contributed to her not recalling aspects of relevance to the interviews.

With respect to the fifth session, Jackie felt she was very tired, and that they were all tired. Jackie thought that this had contributed to a lack of attention, and the facilitator had to struggle with them. She did feel that the facilitator was helpful in explaining how to continue with the process in their organisation.

In summary, Jackie was generally positive about all the sessions. Like Brian, she found the first session good for everybody sensing what everybody else thought. The second session reflected comfort and familiarity with everything. The third session included feeling more relaxed and enjoying the process of dealing with the criteria, although she noted some problems with the early part of the meeting. With the fourth session, Jackie professed enjoyment with the sessions. The fifth session was characterised by her feeling tired and believing the group was tired.

Ken's positive aspects about the first session had a theme of "everybody" somewhat similar to Jackie and Brian's impressions. A sensing aspect is captured in the statement "everybody gets a feeling on what everybody else is thinking" (p. kg1 8-9). Ken also mentioned "everybody being involved" (p. kg1 20) and the positive consequence of being able to aim at a common goal. His negative aspect about the

²⁶ This corroborates Brian's perception of being lost in the third session.

session was that he felt one person had not put in very much (Liam) and this went against his belief that "you only get out of it what you put into it" (p. kg2 39). Ken did not suggest any improvements and noted that everyone was on time, plenty was produced and the session generally went well.

With respect to the second session, Ken, claimed it was mostly positives, and that it needed to be otherwise they were in trouble. He felt there was "good open discussion" (p. kg3 25). However, he noted that individual points had not been discussed to any depth, which he described as "debate", and he thought that debate would be undertaken later. When asked about improvements, Ken did not have any, however, he reiterated that it was all positive. In particular, he stated that "everybody put in, everybody was in it and it was fairly open, little bit of holding back here and there but not much" (p. kg3 45-48).²⁷

Ken reacted to the third session describing it as "bloody horrible" (p. kg4 5). He felt they went backwards and had been going around in circles, repeating what they'd already done. Like Brian, he used the term, "lost" (p. kg4 10). Ken wondered whether he had preconceptions of where they were trying to go. He felt that the session was against his conception of where they were trying to go. The interview discussion then followed the nature of Ken's concerns in more depth.

Ken felt the fourth session was better than the third in that they weren't going in circles. Although he felt they were getting somewhere, he felt that it wasn't far, and that they were still doing the same things as in the first two sessions. Thus the progress of the first two sessions was not reflected in the fourth session.

Ken expressed disappointment with respect to the final session, in that he felt the "whole thing" (p. kg6 9) had not been achieved. A sense was given of not reaching an expected goal, although Ken did not make clear what he thought that goal was. Ken stated, "I was a little disappointed that way to think that we had done it all and then we didn't achieve what we were led to believe we were going to achieve" (p. kg6 10-12). Several aspects may have led to Ken's disappointment. Due to a shortage of time, the facilitator publicly adjusted the design of the last session. A subset of the action plan was undertaken at the session, with the intention that the manager and the group would complete the action plan in their own time. This may

²⁷ The aspect of everybody contributing is in contrast to Ken's first session reaction where he noted one person (Liam) had not contributed.

have contributed to Ken's feeling of not achieving the goal. Additionally, the items were still at a fairly abstract level in that there were not specific operational activities associated with specific individuals. Thus Ken may have felt that they had not got to a sufficient level of detail. These are conjectures as the interviewer and Ken were not able to clearly establish in discourse what the problem was, beyond the fact that Ken felt disappointed that they had not achieved the goal. Ken did have some positive aspects about the final session and they were stated as the talking and communication.

In summary, Ken had a common theme with Brian and Jackie with regard to everybody sensing everybody else, in the first session. Everybody being involved, was a common theme between the first and second sessions. Good open discussion, was a characteristic of the second session. Ken's response to the third session, like Brian, was related to being lost. The fourth session was perceived as making some progress but still involving repetition of earlier work. The final session was positive in the sense of the talking and communication, however, there was a sense of disappointment overall, with the whole set of sessions, in not having achieved Ken's expectation.

Liam described the first session as good and very productive.²⁸ Sensing other ideas that he hadn't thought of, was mentioned several times (p. lf2 10-13, 54-55). This was something that Liam had mentioned in his pre-GSS interview. "I think we'll see a lot of new ideas that we previously haven't thought of as a person and as a group" (p. lf1 838-40). A small group was mentioned as being good as, "everyone thought basically along the same lines" (p. lf2 9-10). In addition to the size of the group, Liam mentioned that the composition of the group reflected a good cross-section of knowledge, and thus different views on items. Liam did not have any negatives on the session and mentioned that he had gone in with an open mind. When probed about improvements, he felt that some points could have been talked about more and that if they had, they may have taken on a different meaning and/or been regrouped. He brought up the time limitation of about two minutes per item, and stated, "I felt I was rushed, I needed a bit more time to think about those things" (p. lf3 106-7).²⁹

²⁸ Interestingly, Liam did not remark, at this stage, on his lack of verbal contribution in the first session although Jackie, Ken and Stan were to mention this.

²⁹ Jackie also mentioned requiring more time to spend on items. Time management is a facilitation function. The facilitator is usually conscious of the need to complete activities within a time frame, yet also allow each individual to express their view. Unless individuals say otherwise, a norm of "moving on" quickly develops.

Following session two, Liam again mentioned seeing "different things that people thought of" (p. lf3 8-9). He felt the second session went better than the first in that in the first session "everyone was sort of wondering how it was going to go" (p. lf3 22-23). This seems to reflect the uncertainty associated with the first session. Liam felt that the task of the second session had got everyone involved as there was a motivation or interest associated with stating what they'd like for the future. Liam referred to the difficulty of getting the "Desired Future Statement" worded correctly. He got lost in the process of the frequent changes to the statement. At the end, the final statement seemed reasonable but he was still not sure. Liam responded to the improvement question by noting that if they did the session again, it would have come out a little differently, based on the group's familiarity with the content and the format.

Liam's response to the third session was, "confused" (p. lf4 5). He "couldn't see where [they] were getting" (p. lf4 6-7), took a long time to get away from "two points" (p. lf4 7,9) and then felt like he was repeating the process of the second session. These aspects are part of the theme of "lost" described by Brian and Ken. The repetition aspect was also mentioned by Ken.

Liam displayed some uncertainty with regard to the fourth session. He thought that having been so confused with the previous session that they would have "got a few more points" (p. lf5 8) and hence he expressed being "disappointed" (p. lf5 9). Liam observed that he had only thought of one point. He assumed that everyone thought they had "got everything" (p. lf5 11-12), however, he felt that "something was lacking" (p. lf5 14). Other than these aspects, he felt it was quite a good session. Liam felt the facilitator had given a good introduction and had "explained where we came from" (p. lf5 92). This had helped to make things "pretty clear" (p. lf5 96). Liam expressed some surprise that a strategy, "Education" (p. lf5 30), that he was interested in, had not scored higher as revealed by the "graphs" (p. lf5 23). Liam also mentioned he found the entering of ratings for some "budget" (p. lf5 119) criteria, "confusing" (p. lf5 101). This was because they had to change their way of thinking and, "think about in reverse" (p. lf5 109). In fact he had incorrectly entered his initial ratings and had to redo them after realising his mistake.

Liam thought that the last session "worked out very, very good" (p. lf6 19) and this was better than what he had expected. He thought the facilitator had played a

positive role including keeping them "on track" (p. lf6 21). This he thought may have been due to the provision of "more examples" (p. lf6 22) and "better guidance" (p. lf6 22-23). This had resulted in the facilitator obtaining "more information" (p. lf6 25) out of them, and also clarifying information for them and the facilitator. The researcher observed that the session was perhaps more focussed than previous sessions as it dealt with the "nitty gritty", for example, overcoming weaknesses and threats the group had discussed in the first session. Additionally, most of the time was spent brainstorming, which may have contributed to Liam's perception of "more information". Liam actually went on to express feeling "glad" (p. lf6 32) that they'd had the brainstorming sessions. He noted the quantity of ideas generated and compared it to the problems they had faced in the third session when the "other way" (p. lf6 38) had been employed. Additionally, he described the brainstorming process as, "you don't get stuck on one idea" (p. lf6 51). Furthermore, Liam described brainstorming as "a simple format" (p. lf6 125), "more productive" (p. lf6 26) and "thorough" (p. lf6 126). Liam observed that brainstorming was good for a person who was not a "dominant speaker" (p. lf6 149) in that it provided "opportunity...of getting a point forward" (p. lf6 147-148). He noted that the anonymity of the brainstorm allowed you to decide to contribute or otherwise during the subsequent discussion. Thus Liam expressed a strong interest in the brainstorming process, possibly motivated in part by his lack of confidence in group discussions.

In summary, Liam was positive about the first two sessions. A common theme was the sensing of others' ideas. He also compared the second session more favourably than the first, in terms of the first been associated with them being unsure about the whole thing. The third session was associated with confusion. The fourth session was described as, "something lacking" despite being a good session. The fifth session was viewed positively, and Liam acknowledged the role of facilitator and the attributes of the brainstorming process. A theme of "productivity" both presence and absence, in the sense of "number of points" or amount of information, was mentioned in all but the second session.

Following his first GSS session, Peter noted that everybody had the opportunity to have their say.³⁰ He observed that he had been slow in terms of typing speed and noted that perhaps there wasn't "enough time" (p. pm2 14), as he would have liked to

³⁰ Peter was absent for session one as he was on paternity leave. Thus his first GSS session was the second session for the other participants. Like Brian's absence in the last two sessions, this illustrates the reality of changes in meeting membership with group work carried out over time.

have entered more points. This aspect is interesting in that Peter was one of the computer novices and here he explicitly refers to the problem of having poor typing skills. An aware facilitator could have extended the time period. Peter felt they had covered a lot of ground, "good, relevant things came out" (p. pm2 26), and "people were thinking along the same lines" (p. pm2 27). He had judged this latter aspect via "looking at people and seeing what they had to say" (p. pm2 32). Peter expressed interest in getting to "more detail" (p. pm2 53) in the later sessions and "really thrashing it about" (p. pm2 52).³¹ At the moment, he felt it was "groundwork...to get all the ideas on paper" (p. pm2 62-63).

Post session two (which was the third session for the other participants), Peter observed that he was "unsure of direction and where we were heading" (p. pm3 6). He felt there was "repetition" (p. pm3 9) and "uncertainty" (p. pm3 11). These were all perceptions shared by other participants expressed as "lost", "confused", and "going around in circles". A general theme seemed to be uncertainty about what they were trying to achieve for the session. Jackie was the only participant who did not express these sentiments prominently.

With respect to the fourth session, Peter felt "very comfortable" (p. pm4 7-8) and "happy" (p. pm4 26) with it. Peter observed that "a lot came out of it" (p. pm4 5). He felt they were past the "middle-of-the road" area and making headway into "the direction we're going in" (p. pm4 7). Peter thought everybody else was also comfortable with the session. He felt they "got more out" (p. pm4 17) than the previous session and everybody had a "clearer understanding" (p. pm4 20). Peter was happy they had stopped where they had so that everybody could go into the next session with "clear minds" (p. pm4 35).³²

In the final session, Peter felt the session "rounded off the whole lot from what we'd been looking at in the past" (p. pm5 6-8). Thus there was a sense of completion. Peter observed that they could use the "same format" (p. pm5 11) to deal with other topics in their own time. The group had in fact focussed on determining actions for six of the dimensions of a strategy named "Rationalisation". The aspect of using the "same format" for work in their own time, was repeated by Peter as "same sort of forum to discuss the topic" (p. pm5 16) and "learning how...we start off the process

³¹ The theme of "getting to more detail" was also mentioned by Jackie and Ken in early interviews.

³² The session finished a half hour ahead of schedule, and the facilitator briefly contemplated starting on the task of the final session, before deciding against it.

for each subject" (p. pm5 89-90). Thus Peter seemed to be identifying an opportunity for transfer of process knowledge from the sessions to their organisation in order to undertake further work on the planning. Jackie had also observed this aspect. Peter noted at one stage that the facilitator had "changed course" (p. pm5 35) during the session because they seemed to be "getting bogged down" (p. pm5 35). This was related to taking a more general course for the actions rather than being very specific.

Overall, Peter appeared to be one of the more positive of the participants with regard to the whole session process. Early on he had realised that they would have to do significant work in their own organisation at the end of the sessions. He had also realised that the sessions were stages that had to be gone through. Peter also had an interest in learning the processes both from his managerial perspective, and for use in their organisation. Thus his expectations were met, and in contrast to say Ken and also Stan (see below), he did not share their disappointment. Similarly to the other participants, Peter experienced problems with the third session.

Post session one, the manager, Stan, was "really happy" (p. sb2 7) with the session. By the end of the session Stan felt "everyone was confident that it was worthwhile" (p. sb2 12) and this had made it worthwhile for him. This perception was consistent with that which Stan expressed in the pre-GSS interview. Here he predicted that the sessions would be worthwhile for him if his staff found the sessions worthwhile. This probably reflected Stan's role as manager and also his role as client sponsor. Stan was the person who had persuaded the others to attend the sessions and thus he had a strong, vested interest in the comfort of his fellow participants.

Stan mentioned an initial period of "the first 10 minutes or so" (p. sb2 9) after which people felt comfortable. Terry also remarked on an initial period of discomfort. It is likely that participants are undergoing the greatest impact of the foreign environment in the initial experience when everything is new. They are meeting new people, are in a new place, have computers in front of them and around them, and are undertaking new activities. For the facilitator, this first session, particularly the first impression, is probably a critical time for determining the ensuing experience.

Stan noted that one participant, Liam, had participated less than usual and Stan wondered if Liam had felt uncomfortable in that situation. Liam later noted that he had felt tense in the first session and it seemed to be associated with the "foreign"

environment. Stan felt that the ideas generated by the group had been good and that "everyone was thinking along the right sort of lines" (p. sb2 29). He found it interesting to see the variety of ways people would interpret "one word" (p. sb2 32). Stan wondered if a "warm-up period" (p. sb2 50) or "pre-session training" (p. sb2 44-45) before the first session might have focussed the participants and brought out some other issues. From a facilitator perspective, this represents another process and would need to be carefully designed, particularly as being an initial process it could have strong influences on the subsequent processes. Stan's concern about bringing out other issues could also be met by revisiting the first session in a later session. Pre-session processes could serve several objectives including allowing participants to meet the facilitation team, gain rapport and trust, obtain familiarity with the technology ("hands-on" if at the GSS facility) as well as Stan's idea of "warming up" for specific processes. The pre-session processes could act to ease participants into the new environment. This would have to be balanced with the fact that significant energy can be associated with starting in a new environment and this can be used by aware facilitators to stimulate the participants and the process.

Stan felt the second session was "really good" (p. sb3 40) and he described the session as "more relaxed than the first session" (p. sb3 11-12). Stan described the reason for people being relaxed in the following way; "the first time round, obviously, it was a new environment which they weren't used to they weren't aware of what to expect so they were, I felt much more on their guard" (p. sb2 51-54). Stan personally felt more relaxed as he had been "nervous" (p. sb3 102) in the first session that some people might not have responded positively and may have been disruptive to the process. When this did not eventuate he had felt less "defensive" (p. sb3 111) in the second session. Stan observed a positive outcome of people feeling more relaxed as being that they "contributed" (p. sb3 13) more. On the downside, however, Stan felt that people did not concentrate as well as the first session and consequently the quality of some comments was not as good and they had tended to "diverge" (p. sb3 80) from the main topic of the session. Stan felt some frustration noting that there were "so many" (p. sb3 25) issues that could have been discussed in much greater depth, however, he felt that was something they would look at after the five sessions were finished, rather than within the process they were currently undertaking. This aspect represented recognition of the limits to the depth of discussion possible within the session. Ken also shared this perception when he described the limited depth associated with discussion on any of the points raised. Ken, however, seemed to expect that more detailed discussion would occur in future

sessions rather than *after* the five sessions. The fact that this expectation was not met, may have contributed to Ken's eventual disappointment at the end of the sessions that they had not achieved the "whole thing".

Post session three, Stan said he felt a "bit confused the same as everyone else did" (p. sb4 5) and also "frustrated" (p. sb4 6). Stan observed that the latter was more dominant and attributed his frustration to the behaviour of Ken. Stan felt that Ken had a "barrier" (p. sb4 9) to understanding what the facilitator had been talking about, and that this had introduced a "negative element" (p. sb4 15) into the session, and associated with Ken's interjecting, that had resulted in others becoming confused. Stan felt Ken's behaviour had hindered other people's thought processes. In fact, Liam commented that Ken had confused matters more. However, the other participants, including Liam, did not attributed their confusion indirectly rather than directly to Ken's behaviour.

With regard to the fourth session, Stan felt it was a "good" (p. sb5 27) session and he was much "happier" (p. sb5 5) than the previous session. Stan felt they had got "back on track" (p. sb5 6), and thought that the facilitator had worked to reassure people, and "explain the process very thoroughly" (p. sb5 7-8). It is possible that a facilitator undertaking these processes in future may need to both explain thoroughly and reassure people during potentially difficult tasks such as the strategy formulation that was undertaken in session three. Stan felt that Ken had helped by being quiet during the session.³³

After the final session, Stan felt that the sessions had turned out "reasonably successfully in that everyone got something out of it" (p. sb6 14-15). This was consistent with Stan's pre-GSS perception that the sessions would be worthwhile for him if the other participants felt they were worthwhile. However, Stan stated that he was "disappointed at the end of [the final] session" (p. sb6 19-20). He felt they needed "twice as much" (p. sb6 20) time to undertake what they attempted and if that had been the case, they would have got more out of it. Stan would have liked them to have looked at "macro" (p. sb6 65) actions for each of the issues and then at least an introductory "micro" (p. sb6 65) assessment for each of the macro actions. Stan felt this would have made it easier for their planning activity when they were back in

³³ The researcher noted in field notes that Ken had been unexpectedly quiet. When prompted about this during interview, Ken acted surprised, however, the researcher remained suspicious that he had withdrawn from the process. Stan was also of this opinion.

their work environment. Stan indicated that he was currently "unclear" (p. sb6 77) of how to proceed and felt that he would need to "rationalise" (p. sb6 82) the activities they would undertake, given the time involved in going through all the issues. Thus it seemed that Stan was beginning to confront the issue of having to deal with the continuation of the process within their organisation, where, as manager, he would be taking responsibility without the help of the facilitator. Indeed, Stan described a "limbo period" (p. sb6 102). This aspect was associated with the group not spending enough time on the task of the last session, and thus he, as manager, not feeling clear about where they had to go in their next step.

It seemed clear that Stan would have been more satisfied if the work on the action plan had been undertaken over two sessions in order to provide enough detail so he was clear as to how they would proceed. The facilitator had in fact compromised in the last session, realising that there was not sufficient time to do all the detail. Given that Stan was both the manager and the client sponsor, it would have seemed prudent to have extended the process for another session in order to satisfy Stan's concerns. From a consulting perspective a facilitator needs to be aware of client sponsor concerns. Ending processes on a "high note" would be of particular concern from the point of view of gaining repeat business. More importantly, in this case the client sponsor was also the person having the organisational responsibility for the continuation of the planning process in the organisation. A "successful" continuation would likely be associated with the manager feeling confident about the continuation of the process rather than unclear, as expressed in this study.

The facilitator and researcher did meet with the client sponsor several weeks after the last session in order to provide a report of the sessions and discuss any outstanding issues. At this stage, Stan reported feeling more settled and comfortable with the process. He also asked if he could ring the facilitator to discuss any problems. This was agreed to by the facilitator. It seemed in this case that having had time to reflect, Stan had become clearer about how to proceed. However, the lesson from this study is that there are important processes associated with the transition from the session environment to the work environment. In part, these are influenced by how the sessions are perceived as ending.

With regard to session five, Stan noted some problem understanding what the facilitator was trying to say when the facilitator kept using the term "meta". This combined with Brian's statement (see by3 491-510) about wondering what

"brainstorm" meant in the first session, points out the need for the facilitator to use language carefully. A tactic could be to encourage participants to interject if there are any words being used that they are not sure what is being meant. The facilitator could then either use a term that the participants are more comfortable with, or continue using the term, possibly writing up a definition so that participants can refer to it, like a dictionary.³⁴

Post session one, Terry observed that the session had been "constructive" (p. te2 13, 60) and productive in the sense of "a lot of points [were] brought out" (p. te2 14). In fact there were more points than he had expected. Terry noted that the session had been "unknown" (p. te2 25) going into it. He noted a "variety" (p. te2 28) of issues coming out and this he attributed to the composition of the group representing three subgroups - technical, management and the supervisors. Terry wondered how the information would be "used" (p. te2 51) when all the sessions were completed. He felt the session had gone "smoothly" (p. te2 55), time went "quickly" (p. te2 55) and there had been a lot of talk. Terry had indicated in his pre-GSS interview that he was unsure of how they would spend the time of the sessions, however, he had now found that the time went quicker than he had expected. Terry observed that he had felt "intimidated" (p. te2 67, 73) in his initial use of the computers, but that had improved as he realised how to use them. He noted that he had received some assistance. Terry felt the computers had been "useful" (p. te2 73), particularly, with regard to undertaking the evaluation phase. This he had thought was good from the perspective that "you could see how other people were maybe thinking" (p. te2 83-84) and also "whether you were thinking as a group together on the same sort of track" (p. te2 84-86). This highlights the use of the graphics of the distribution of evaluations. Terry noted two uses, one to sense how others were thinking and the other to see the degree of consensus. In fact, Terry noted there had been "some differences" (p. te2 87-88), however, "everything was within a fairly close block" (p. te2 88-89). Hence Terry seemed to imply that he had a sense of consensus within the group.

Post session two, Terry described the determination of a "Desired Future Statement" for the department as a "useful" (p. te3 13) and "interesting" (p. te3 18) exercise. Terry observed that the spread of participants' ratings was greater in the second session compared to the first session. Terry described this as "maybe, everyone

³⁴ The GroupSystems V software provides a "dictionary" module (called *group dictionary*) for just such a purpose (GroupSystems V Manual Basic Tools 1990-92).

wasn't thinking along exactly the same lines" (p. te3 22). Terry noted, however, that the ratings of the top half a dozen items were closer. In fact, this is almost guaranteed by the way the system reports the ratings. The items are ordered in descending order based on the average rating. Usually the items with high averages will have consistently high ratings, particularly because the scale length is finite, constrained between zero and 10. Similarly the items with low averages will have consistently low ratings. The items with averages "in between" will be those that display a wide spread of ratings. These items are most likely to be the ambiguous or controversial items. Indeed, Terry described the points following the top few as maybe "vaguer and not considered as relevant in people's minds" (p. te3 25-26). The facilitator has a responsibility to provide guidelines to the participants on these aspects so that they are aware of the way the ratings have been processed and have a feel for the range of interpretations and associated data presentations. In the absence of facilitator guidance, participants can make uninformed and possibly misleading interpretations. The facilitator needs to undertake a balancing act between providing guidelines yet still allowing the participants to use the data presentations as a vehicle for discussion and increased understanding. In the actual session, the facilitator was fairly brief in his analysis of the ratings, possibly considering time to be better spent on other activities.

Terry, like several other participants, including Stan in this part of the interview and others in other parts of the interviews, felt some who had been "quieter" (p. te3 35) in the first session "spoke up a bit more" (p. te3 36). Terry attributed this to people being "more used to the system" (p. te3 38). He spoke of the "computer system" (p. te3 48), the "typing in of the various statements" (p. te3 49) (which referred to the brainstorm phase) and "the pointing" (p. te3 49) (which referred to the evaluation phase). Terry also mentioned that "you knew the people" (p. te3 51), referring to the facilitation team, and "what role they took" (p. te3 56-57). The combination of "[knowing] what you were going to be doing" (p. te3 46), knowing the people, and being used to the computer system, resulted in people feeling "relaxed" (p. te3 44, 52) and thus opening up more and making things "quicker" (p. te3 66) and "smoother" (p. te3 65). Terry felt that the spread of verbal participation had been more even than in the first session.³⁵ This he attributed to people feeling more comfortable, having reflected from the previous session, and dealing with things that "interested them more" (p. te3 83). Terry felt that the task of coming up with the

³⁵ Liam, in particular, was observed by the researcher as being quiet in the first session and then speaking more in the second session.

desired future statement, involved more discussion than the first session which he described as an "information gathering session" (p. te3 91) and that had helped people to "open up" (p. te3 102). Liam also noted that the task of the second session, being concerned with the future, was more interesting for the group.

With regard to the third session, Terry observed that he got "really bogged down, early in the piece" (p. te4 37) and he didn't feel as positive as he did about the previous two sessions. Terry noted "confusion" (p. te4 41). The confusion was associated with the "two points of Stan's" (p. te4 42-43) that had been initially put up on the board. Terry had found that those points "stifled" (p. te4 45) him in the sense that "everything [he] had thought about before coming along on the day" (p. te4 54-56) was covered under those two points and he could not think of anything beyond those points. Terry had not input anything into the brainstorm. He felt that the session didn't seem to "flow" (p. te4 71) and overall he "came out of it [the session] feeling more negative than positive" (p. te4 72-73).

Post session four, Terry felt the session "worked quite well" (p. te5 56), it had run "smoothly" (p. te5 64) and he had felt "comfortable" (p. te5 65) with it. Terry also felt there had been "a fair lot of ideas" (p. te5 64). Terry was unsure whether everyone had agreed on how the evaluations had worked out.

With respect to the final session, Terry described it as "fairly good" (p. te6 8) and that it had gone "smoothly" (p. te6 16). Terry stated "we probably reached the aim of what the sessions were" (p. te6 11-12). He noted that there was a lot more work to be done and that the manager, Stan, had pointed out that the sessions were just a "starting point" (p. te6 14). In fact, looking back over the five sessions, Terry observed that only the third session had caused him problems, the rest had been good.

6.4.2.1. Discussion of "Overall"

The responses described in the previous section are presented in Table 6.2. In each cell of the table the main points are described for a particular participant following a particular session. The wording used is close to the speech of the participants. The table provides a quick reference for the discussion following.

Table 6.2 Response summary for code "over": Overall about the session (first of two pages)

Participant	Post session				
	one	two	three	four	five
Brian	everyone talking/ everyone's ideas/ different opinions/ difference in importance placed upon issues by different people/ novel situations/ session professional/ speaker excellent/ format good/ thoroughly enjoyed	narrowing down to nifty gritty/ direction they agreed on/ things done very well/ format same	lost/ lack of understanding/ lack of comprehension/ not able to keep up/ not knowing what they were trying to achieve	Brian absent on long service leave	Brian absent on long service leave
Jackie	most people getting idea on what everybody else thought/ one person quiet/ identification of SWOT/ coverage of most things/ more time to spend on items/ chauffeur did not always capture what they intended	session moved well/ people familiar with format/ people comfortable being there, whereas first session people unsure	more relaxed/ session good/ enjoyed prioritising things/ cold start/ people went blank/ people comfortable by end of session	happy with all sessions/ enjoyed sessions, got lots out of them	personally tired/ they were all tired/ facilitator struggled with them/ facilitator helpful in explaining process for use in their organisation
Ken	everybody gets feeling on what everybody thinking/ everybody involved/ one person did not put in/ plenty produced/ generally went well	mostly positives/ good open discussion/ discussion not debate/ everybody involved/ fairly open	bloody horrible/ lost/ backwards/ going in circles/ repetitions/ preconceptions of where they were headed	getting somewhere/ not far/ still doing same things as in first two sessions	disappointment/ did not achieve whole thing/ talking and communication was good
Liam	good session/ productive/ others ideas that he had not thought of/ everyone thought on same lines/ rushed more than two minutes needed	different things people thought of/ better than first session because everyone wondered how first session was going to go/ desired future got everyone motivated	confused/ couldn't see where they were getting/ couldn't get away from two points/ repeating second session	expected more points/ disappointed/ something lacking/ session was good/ facilitator gave good introduction and explanation/ budget criteria entry in reverse confusing	very very good/ better than expected/ facilitator played positive role/ brainstorming simple, productive and thorough, good for not dominant speaker

Table 6.2 ctd. Response summary for code "over": Overall about the session (second of two pages)

Participant	Post session				
	one	two	three	four	five
Peter	Peter absent on paternity leave	everybody had opportunity/ he was slow in typing speed/ covered lot of ground/ good relevant things/ people thinking along same lines/ looking to getting to more detail	unsure of direction where we were heading/ repetition/ uncertainty	very comfortable/ happy/ lot came out/ making headway/ everyone else comfortable/ got more out than last session/ everybody clearer understanding	rounded off/ use same format in work situation/ learn how to start off process/ facilitator changed course in sessions
Stan	really happy because others confident it was worthwhile/ ideas good/ people thinking on right lines/ people comfortable after first 10 minutes/ one person did not participate/ variety of interpretations of one word	session really good/ session more relaxed than first session/ personally relaxed/ people contributed more/ relaxation led to less concentration/ frustration with so many issues to discuss	confused same as everyone else/ frustrated particularly with behaviour of one person felt they confused others	session good/ happier than previous/ back on track/ facilitator worked to reassure people and explain process	reasonably successful in that everyone got something out of it but disappointed/ needed twice as much time for last session/ unclear of how to proceed/ limbo period
Terry	constructive/ productive/ unknown going into it/ variety of issues/ how would information be used/ session smooth/ time went quickly/ intimidated by computers but improved/ computers useful particularly evaluation phase/ see how others may be thinking	desired future statement useful and interesting/ spread in ratings maybe not everyone thinking along same lines/ people spoke up more/ familiar with systems/ knowing people/ knowing what you were doing/ relaxed/ people opened up more/ quicker/ smoother/ spread of participation more even/ more interest in desired future statement	confusion/ bogged down early in session/ not as positive as first two sessions/ two points of Stan's stifled/ no input/ session did not flow/ came out feeling more negative than positive	session worked quite well/ ran smoothly/ felt comfortable with session/ fair lot of ideas/ unsure whether people agreed on outcome of evaluations	fairly good/ probably reached aim/ lot more work to be done/ just a starting point

Temporal aspects

The most striking temporal aspect was the changes from the first to the second session (see Table 6.2). This only becomes evident in the responses to the second session. Brian noted that the format was the same. Jackie observed that the session moved along well because people were familiar with the format, and comfortable with being there, whereas in the first session people were unsure. Liam described the second session as better because everyone had been wondering how the first session would go. Stan described the second session as more relaxed. He felt personally more relaxed, and he felt people contributed more. Terry noted that people were familiar with the system, they knew the facilitation team, and they knew what they had to do.

As judged by the response to the second session, the first session was characterised by being unknown, unfamiliar, and uncertain. Feelings associated with this included feeling nervous and tense, even intimidated. One participant, Liam, recognised by others as not participating in the first session was to later comment that he felt keyed up and tense in the first session and this was associated with the new environment. Having experienced the first session, the participants had experience and familiarity, the environment was known and more certain. Thus in the second session, participants felt comfortable and relaxed. Consequences of this were a more "open" atmosphere with people participating more. Tasks were easier for participants and the session moved quicker and smoother. The fact that the first session was viewed positively by all participants probably aided the comfort and relaxation associated with the second session. If the first session had been a "disaster", then it seems likely that comfort associated with being in a familiar environment in the second session, would have been offset by the negative evaluation of the first session.

A theme is present in the response to the first session that could be described as "sensing everybody else". Brian described the best things as everyone talking, getting everyone's ideas, and seeing different opinions. Jackie noted people getting ideas on what everybody else thinks. Ken observed that everybody gets a feeling on what everybody else is thinking. Stan noted the variety of interpretations of one word. Terry noted the variety of issues from different subgroups and the use of the graphs to see how others were thinking. Whilst this was a theme in the first session it was not obviously present in the latter sessions. It seems likely that the first session is the first opportunity that participants have to sense others' views on the particular task as

that particular group. The task, in this case the strengths, weaknesses, opportunities and threats for their department was not something they would have discussed as a group of six people in the past. Given that the topic was part of an important task of planning the future of their department, it was likely important to each participant that they got a sense of what each person in the group thought, so that they could place and position themselves within the group. Later sessions would likely involve continued sensing of others, however, the sensing activity was most salient to participants at the first opportunity that they met as a group engaged on the planning task.

The third session stood out as being a problem for the participants. Confusion characterised the session. In contrast to the first two sessions, participants viewed the session more negatively than positively. The factors associated with the confusion appeared to be multiple and interrelated. The way the task was approached the "other way" seemed to be a catalyst for the confusion. The "other way" had the unforeseen consequence of stifling the participants in the sense of them not being able to think beyond the initial issues raised and thus getting bogged down or going blank. The participants had the impression that they were expected by the facilitator to come up with more issues and this was not possible for several participants. There was a general feeling of uncertainty, not knowing what they were trying to achieve. One participant, Stan, felt the confusion had been enhanced by the behaviour of another participant.

The fourth session represented some recovery from the problems of the third session. The facilitator was seen as explaining things carefully. Participants were generally happier and comfortable with the session compared to the third session although not unanimous as in their positive view of the first two sessions. Ken felt progress had been limited and Liam felt "something was lacking".

The final session included assessment of the whole intervention and the future in their organisation. Ken expressed disappointment that they had not achieved the "whole thing". Stan felt disappointment that they had not had enough time for the last task and he was unclear of the future in their organisation. Liam was later to observe that he felt confident about the future of the process in the organisation. Peter felt the last session had "rounded things off" and noted the opportunity to apply the processes they had learnt within their organisation. Jackie also noted this latter

aspect. Terry noted that they had "probably" achieved what they had set out to achieve and there was a lot of work to be undertaken within their organisation.

It is hypothesised that the changes experienced in the first to second session, are general processes of familiarisation. The confusion phenomenon of the third session, however, does not appear dominated by temporal factors. Process and task nature appear to be antecedents in this particular case. The potential for confusion is, however, posed as a general characteristic of groups. Understanding its nature is signalled as important, particularly for facilitators.

Not technology

The first responses were conspicuous in the absence of references to the technology. Most responses incorporated reference to the process, people, feelings, and outcomes. Several explanations are possible. It may be that people, process and feelings are more important to participants than technology. That concern about process would dominate concerns about technology is perhaps not surprising given that the participants' major interest would be what comes out of the process, what others are thinking, where the organisation is heading, and what are the implications. To some extent the participants are shielded from technology concerns, other than the personal hands-on interaction. It is the facilitator who assumes the responsibility for choosing the technology in such a way as to support the process. The facilitator then makes every endeavour to ensure the participants are comfortable with their personal use of the technology. Providing the technology does not impede the sensing of other people's opinions, or obscure where the process is heading and what is being achieved, then it can be construed as being of lesser importance, possibly taken for granted. Additionally, the sessions included a considerable proportion of discussion time as opposed to hands-on keyboarding, so the participants' physical interaction with the technology constituted a relatively small proportion of the total session time. In meetings where participants spend more time hands-on with the technology, there would likely be a greater recognition of that usage, given that it would likely impact more on their communication.

The interest associated with the outcomes of the sessions may have been far greater than the fact that the sessions were supported by technology. This may have resulted in the lack of immediate responses about the technology. The outcomes had the

potential to change the work environment, particularly for the supervisors and generally for the whole department. From a facilitator's point of view this is probably a desirable situation. The GSS technology is designed to be in the background and the focus is on the task.³⁶

The triumph of process over technology is captured in part in Gopal's (1991) dissertation that examined the effect of technology and task on group outcomes. Two GSS technologies were compared. Findings were that participants found both technologies highly effective for their tasks. However, there was recognition that the technologies had been carefully fitted to the tasks. The author then concluded:

Thus the effectiveness of meetings using either technology depends not so much on the technology itself, but on the way in which the technology is used to achieve the meeting objectives. (Gopal, 1991, p.271)

The "way in which the technology is used" is what the participants may recognise as the "session", "format" or process. Gopal, Bostrom, and Chin (1992-3) referring to the same study as Gopal (1991) use the term "*process design*" (p. 63) to capture the way in which the technology is used rather than the existence of the technology per se.

The following were the few references to the technology. Peter noted his slow typing speed in the first session. Terry noted that the computers had been useful in the evaluation process. Terry also referred to his personal feelings of intimidation with respect to use of the computers. Terry referred to the "computer system" and the brainstorming and evaluation process. Liam referred extensively to the brainstorming process post session five.

Later in the interviews, there were references to technology. Brian spoke of the "computerised attitude" (p. by2 157-8) to the process and the "computer idea" (by2 p. 181-187) (in relation to anonymity). Jackie spoke of the supervisors' lack of typing

³⁶ DeSanctis et al. (1993) reported on team use of GSS at Texaco:

members rarely complemented or criticized the technology when using it; rather, they focused their sentiments on the topics at hand, treating the technology as a necessary mechanism for completing a task goal and nothing more. (p. 20).

skills (p. j2 135-6), although the references were with regard to the technology's effect on the process.

Direct questions about the technology were asked later in the interviews, and responses obtained, however, the message from the analysis above is that technology per se did not appear to be a primary concern of the participants.

6.4.3. Comparison of first session with monthly meetings

Following the first session, the participants were asked to compare their experience with their monthly department meetings. The monthly meetings were a common experience, a forum where they met as a group, had an agenda and a chairperson, thus it was felt that questioning could reveal similarities and differences that would help determine the nature of GSS sessions for the participants. Whilst GSS sessions might be a special kind of meeting, it is likely that participants form perceptions through comparison with previous meeting experiences.

In this study it was expected that relationships established amongst the group might be expected to carry over into GSS sessions. Meeting roles would likely differ mostly in the role of chairperson. This role would be filled by the facilitator rather than the manager Stan. Hence the manager would be giving up a considerable amount of power that he would normally have at the monthly meetings. The nature of the task would be quite different to that undertaken in the group's monthly meetings, given that it concerned long term planning, rather than dealing with what had occurred in the past month or what was happening in the near future. The agenda would be somewhat different as it would be steps in a five meeting process, rather than discussing specific issues that had been circulated prior to a meeting. The sessions would be taking place at a foreign venue and there would be two people - the facilitation team - that the participants, with the exception of Stan, had not previously met.

The process of the sessions would be supported by computer technology that would involve the participants dealing with a keyboard and screen interface. Three of the six were computer novices. The computer technology would allow anonymity of ideas, which was novel compared to their monthly meetings where agenda items

were associated with persons, and people were identified as they spoke. Ideas would be typed in and appear on a public screen. Discussion and organisation of ideas would involve dealing with items on a list one at a time, and only briefly discussing each item, roughly three minutes, before categorising the response. A person known as the chauffeur would capture the categorised ideas on a word processor outline and this would be projected onto a front screen. Following completion of all items on the list, a private evaluation of the ideas would take place inputting numbers between one and 10 via the computer terminals. This form of evaluation would be foreign to the participants, in that they did not vote, via a numerical response, at their monthly meetings. Hard copy print-outs would be available from a laser printer during the course of the meeting. The session would be longer than their monthly meetings, three hours compared to one and a half. The SWOT process to be used to discuss strengths, weaknesses, opportunities and threats would also be novel to the participants.

The above were all the researcher's preconceptions about what the participants might respond to. The following are the summaries of their actual responses.

Brian saw that "openness" (p. by2 109), that is, being able to "say what you think" (p. by2 114-115) and "there's no ill feeling" (p. by2 112), was a characteristic of their normal meetings and also of the session. He also felt that the session, like their meetings, was run or chaired well. His difference was stated as "Computers. That format." (p. by2 140). Brian's description of what he meant by that, seemed to reflect that he associated the format or process with the computers.³⁷ He mentioned the jumbling of things, (which is actually an alphabetic sorting of items) and the production of the strengths, weaknesses, opportunities and threats (which they did via facilitated discussion and the chauffeur capturing the emergent categorisation). He mentioned the selection of a subset, the weaknesses (which the chauffeur facilitated via the software) and then the evaluation of the ideas - "put in our opinion of which was the weaknesses that we had to look at first" (p. by2 149-50). Brian mentioned the "screen" explicitly - "came up on the screen as a whole" (p. by2 140-1) - and also indirectly, "it went up and came out" (p. by2 152-3). Overall, he described the format or process as "the computerised attitude towards the session" (p. by2 157-8).

³⁷ The term "GSS process" springs to mind, reflecting the notion that the process of undertaking the task is intimately connected to the GSS technology. The facilitator designed the meeting with the GSS technology in mind. This design and the ensuing process is somewhat different to that without the resource of the GSS technology.

Brian went on to refine his earlier statement about openness being present in the session, as well as their monthly meetings - he felt the session had been "more open" (p. by2 176-7). This he thought may have been because of anonymity, which he described as "the computer idea...you could actually make a statement by pressing those buttons, and you weren't saying it, so at first you didn't have to defend yourself straight away because all of a sudden you could put it up on the board and there it was for everyone's thoughts without you being sort of being the one who said it." (p. by2 182-187).³⁸

Jackie's response to similarities between the session and the group's monthly meetings was unclear. It seemed that she felt the chairing of the session was tighter than in their meetings. The loose chairing at their monthly meetings was associated with freely flowing conversation and this constituted "informality". She did mention that there was an agenda and they usually went through items one at a time. Jackie noticed that they had been allocated seats at the session, and she wondered why that was the case.³⁹ She went on to describe an issue relating to the supervisor's lack of typing skill and their lack of dealing with administrative issues concerning the whole organisation. These two factors, she felt had resulted in there being less ideas raised by the supervisors as opposed to the administrative staff.

In terms of differences to their monthly meetings, Jackie noted that the manager, Stan, "tended not to want to chair the meeting" (p. jt2 182) in contrast to his normal role. She noted that Darryl, the facilitator, had undertaken this role instead. Jackie noticed that the topic of the session was different to their normal meetings, in that they were discussing the future of the organisation rather than current happenings. Some topics had arisen that she felt strongly about and thus she felt she had been more outspoken than the usual meetings. Again she raised her belief that the supervisors usually concerned themselves with current happenings in the field and did not have long-term objectives for the department.

³⁸ Fear of having to defend yourself immediately is close to Dennis' (1991, p. 46) definition of *evaluation apprehension*: "Fear of negative evaluation causes members to withhold ideas and comments". Dennis asserts that anonymity should decrease evaluation apprehension (p. 52). Brian's remarks appear to support Dennis' assertion.

³⁹ The technical system did impose some constraint as occupied terminals required sequential diskettes. As there were six participants for ten terminals, the chauffeur located the six on contiguous terminals. Name cards were placed along side each of the six terminals by the facilitator. Whilst this was premeditated to ensure participants went to those six terminals, the arrangement of individual names was without system. Jackie queried the arrangement.

Ken described the similarities to their monthly meetings as "Only the people that were at it." (p. kg2 78). Additionally, like Brian, he noted that the discussion in the session was "open" like their normal meetings. This openness was described as "whether it upsets somebody or not it's too bad, which is only the correct way to do it." (p. kg2 104-5). He then described the difference in terms of the agenda. Ken felt that apart from the four headings - strengths, weaknesses, opportunities, and threats, they were "drawing up the agenda for the next sessions" (kg2 80). In their normal meetings, the agenda was already set. So in a sense he saw the session as being "agenda formation" rather than working through an agenda. Ken also noted that in normal meetings they had open question or discussion time, and this had not occurred at the session. He noted that at normal meetings they discussed what was happening in terms of specifics whereas in the session they had discussed strengths, weaknesses, opportunities and threats.

Liam described talking by a couple of leaders as being the same in the session as their monthly meetings. He seemed to imply that he was not good at talking in a group and rather allowed others to talk and mention the points.⁴⁰ Liam described the difference as being that, at the session they had limited time to think about the topic to be discussed, whereas at their normal meetings they had talked about agenda items before the meeting. He felt that having had limited time was a positive because you had to think quickly, didn't come in with all the answers, and could go away and think about new things that arose.

Peter described the "totally neutral environment" (p. pm2 68) as a difference to their monthly meetings.⁴¹ He spent some time describing the problems associated with the supervisors having to come to the administrative building for meetings - feeling uncomfortable and having to wait, after interruptions to starting times. Additionally, he felt that the session was more focussed than their departmental meetings which often tended to get "off track" (p. pm2 86). In the session they were looking at just one topic - "our future"(p. pm2 97), and everyone had understood that.

⁴⁰ In fact Liam hardly spoke during the first session.

⁴¹ Peter's response refers to his first GSS session, which was the second session for the other participants, as he was absent for session one.

Peter's only similarity between the session and their meetings was like Ken's, "Really only that we got together as a group." (p. pm2 105). He reiterated the value of getting away from the workplace for the session, in that it allowed people to forget about their daily work as they would not be back at work until the following day. In normal meetings, people felt "on edge" because they were more concerned about their daily work than the substance of the meeting. Hence the environment at Curtin was a plus, in being away from their workplace.

Stan found that the informality or people's comfort was similar. Everyone had an opportunity to speak or participate. He felt that Terry and Liam were the least participatory verbally, and that was similar to their normal meetings. He did note that Liam was quieter than usual and suspected he had maybe felt uncomfortable in the unfamiliar environment, particularly not knowing some people there (the facilitator and chauffeur).⁴² Stan noted that he had played a similar role to monthly meetings, "clarifying things ...when people perhaps weren't too clear on what someone else was trying to get at" (p. sb2 92-94).

The most different thing for Stan was that during the session people were more focussed on the department as a whole, rather than just dealing with specific issues. Jackie, Ken and Peter also recognised differences in the task of the session compared to their monthly meetings. Stan thought that the structure or process of the session was more logical, and more structured than their normal meetings, in that all issues had been "considered in some detail and fairly" (p. sb2 126-127), and not "pushed aside...without being assessed quite so critically" (p. sb2 130-131).

In terms of differences, Terry noted that the topic for the session had a long term focus whereas at their monthly meetings it was a short term, often a monthly focus. This recognition of a different focus was a theme shared with Jackie, Ken, Peter and Stan. Terry described the session as considerably longer than their normal meetings, and this allowed more varied points to be brought out. Like Peter, Terry described the different environment, but related it to comfort associated with security and confidentiality. He said "You are a little reluctant to do it [discuss executive

⁴² Forsyth (1983) refers to the forming or orientation stage of group development where:

members must deal with people they hardly know, and this initial unfamiliarity leaves them feeling uncomfortable and constrained...with time, tension is dispelled as the ice is broken...feelings of interdependence also increase...and members reach a rudimentary level of trust. (p. 78)

decisions] within the house where walls are thin." (p. te1 157-8). Furthermore, he stated, "I think you could talk more much more freely in that [the session] situation." (p. te2 201). Terry also mentioned putting ideas up "on the computer screen for open discussion" (p. te2 200-201). He went on to discuss the use of anonymity, that by separating the idea from the person "you're looking at points on a particular relevance rather than who brought them up" (p. te2 210-211). In particular, he was able to "approach it in a more open manner" (te2 p. 226-227) and ideas he had put up had been discussed fairly freely. Terry preferred that way of doing things and mentioned that he felt that it had worked quite well.⁴³

In summary, the most common theme was the difference in focus or topic of the session. All participants except Brian commented on this, generally noting the long term nature and/or the whole department focus, as opposed to the specific, short term focus of topics discussed in their monthly meetings. Brian was the only person who explicitly mentioned the computers, however, he also mentioned them in combination with the format. Stan noted that the process was more logical, fair and thorough than their normal meetings. Ken felt that the session was agenda setting rather than agenda processing. Liam also noted that their normal meetings gave them time to think and discuss the agenda items before arriving at a meeting. Both Brian and Terry brought up the use of anonymity and its contribution to openness of discussion. Peter and Terry both commented on the "environment" - Peter describing it as "totally neutral" and Terry as "confidential". Jackie noted that Stan had not chaired the meeting. Peter and Ken both noted that the people were the same. Brian and Ken commented on the atmosphere of openness - being able to speak freely - that existed at both their meetings and also the session. Stan and Liam mentioned that verbal participation was similar to their monthly meetings, although Stan felt Liam had been quieter than usual.

⁴³ Interestingly, the two participants, Brian and Liam, known for being the least participatory in group discussion, showed the most interest in the opportunity to have an idea up for discussion with the provision of anonymity reducing evaluation apprehension through promoting the idea rather than the person.

6.4.3.1 Discussion of "Comparison of first session with monthly meetings"

The task of the session was generally seen as different to the tasks that the group dealt with in their normal meetings.⁴⁴ The major differences were noted as being that the task had a long term, future focus (Jackie, Peter and Terry), the agenda for future sessions was being developed (Ken), and the task was focussed on the department as a whole.

Some interesting aspects concerning "verbal participation" arose from the interviews. One of these was the concept that there was an established pattern or norm of verbal participation as part of the history of the group. Some people were recognised as quieter than others (evidence from Stan, Ken, and Liam) , possibly reflecting lack of skills and/or confidence at speaking in group situations (evidence from Liam). Some people were recognised as "leaders" (evidence from Liam). Thus there was a recognised established order to verbal participation. The distribution of verbal participation at the first GSS session was noted by Stan as being similar to that during the group's normal meetings.

GSS technology is often presented as encouraging greater and more equal "participation". Questions arise as to: (a) What is meant by participation?, (b) When is equal participation desirable?, and (b) How to bring it about? . Participation at a GSS meeting could be considered as including verbal, non-verbal and written participation.⁴⁵ Management of verbal (and non-verbal) participation in terms of distribution amongst participants is very much in the hands of the facilitator and the group. Opportunity for written participation can be presented through the technology without the need to battle for "air time" as occurs in verbal discussion.⁴⁶ However, the outcome of that opportunity for written participation is in part determined by the typing skills of the participant and his or her comfort and skill with the computer. In a GSS session where verbal participation forms a significant part of the process, then

⁴⁴ Bostrom, Anson and Clawson (1993, p. 149) refer to task as providing the content or "what people will be interacting about" in a meeting. A dictionary definition refers to task as "any piece of work" (p. 1738), and work as "exertion directed to produce or accomplish something" (Delbridge, 1985, p. 1965).

⁴⁵ People participate non-verbally at meetings through body language. (Morris, 1977) Non-verbal behaviours at meetings could include a frown, a smile, leaning back on the chair with hands on the head, acting sleepily, or standing up.

⁴⁶ Dennis (1991, p. 52) names this *parallel communication* and asserts that it increases air time. The term "simultaneous input" is also used.

the concept of participation becomes more weighted in favour of verbal rather than written participation. The outcomes of either verbal or written participation are likely complex and entwined with each other as the GSS activity produces symbolic records in the form of the hard copy reports and records in the memories of each of the participants. Within the style of GSS session conducted in this study there are key junctures at which participants can use verbal means to influence the subsequent written record. An example of these junctures is during the discuss/organise phase of the meeting. A participant can use verbal skills to change meanings of ideas and have them recorded at a higher rather than lower level. Having a concept recorded at a higher level gives the concept more "power" in the hierarchy of ideas. However, there is the opportunity during subsequent evaluation, for ideas to be rated by each member of the group.

Intervening to change participation patterns in a historical group by say forcing a group to use only written communication rather than verbal would likely be rejected given an existing social order at meetings, based on verbal communication. It was noted in this study by Stan that one participant, Ken, was "accommodated" by the group in the sense of allowing him to contribute during verbal discussion, irrespective of whether he had entered ideas electronically during the previous brainstorm stage. Additionally, in small groups (less than 10) in face-to-face situations, verbal and non-verbal channels provide rich forms of communication - large volumes of information can be conveyed in a short time.

Given the above considerations, it appears that a balance between written and verbal communication should be maintained in these type of situations. The electronic communication via the technology provides opportunity for a distribution of participation different to that of the historical verbal distribution for the group, provided that the distribution of typing and written expression skills is different to the distribution of verbal skills. The existence of a personal channel of communication to the public screen ensures a greater level of protection of ideas than is the case in verbal communication where one can be "shouted down" immediately.

Thus GSS technology and processes employed in meetings offer possibilities for different distributions of participation than is the case in their absence. Whilst designers of meetings may wish to bring about broader participation, they may also have to deal with changing the social order of historical groups particularly when

that social order is based around verbal communication skills rather than typing, computer and written expression skills.

6.4.4. "Anything else"

Participants were asked at the end of each interview if they had anything else to add. This represented an opportunity for participants to reiterate points they felt important, or to say things they hadn't yet been able to say. It was a very unstructured prompt enabling a richness of possible responses. The responses are summarised below.

Brian, with regard to the first session, noted the length and timing of the session with respect to feeling tired and it not helping one to think properly. The supervisors started their days early, working from 6.30am to 4pm. The sessions started at about 3pm and finished around 6pm. Hence the days were quite long for the supervisors. However, Brian noted that the timing of the sessions had to fit in with everything else, hence it did not appear to be a big issue for him. He mentioned several times that he enjoyed the session and "it was good to get everybody saying their bit about what they think should happen" (p. by2 724-725). Brian noted that "it was all new to me, the format of doing this" (p. by2 721-722).

With respect to the second session, Brian described his concerns compared to the concerns of others and noted that his were not "the total thing" (p. by3 993) but rather part of it. He expressed hope that the "main objective " would come out at the end. This seemed to relate to where he felt things should go. He expressed disappointment that he would miss the "nitty gritty" (p. by3 1006) or "end result sessions" (p. by3 1006-1007), and because of this it concerned him that his issues would not be put across.

In his final interview, concerning the third session, Brian expressed uncertainty. In contrast to the first two sessions, where he felt that everybody thought they had achieved something, in the third session they were unsure about their achievement and they did not fully understand what the session was about. Brian noted that this "was said by most people" (p. by3 312).

Jackie did not have anything to add about the first session.

The only issue Jackie mentioned, with regard to the second session, was that she had a crick in her neck from turning to face the public screen. She agreed with a suggestion for the provision of swivel chairs. The current seats were non-swivel chairs.

In the interview concerning the third session, Jackie noted that some of the participants had made comments to the researcher (who was observing the sessions) and this she thought was because they felt the researcher was not being included, or was being ignored. She did note that "obviously you're [the researcher] not there to be involved with it at all" (p. jt4 490-491).

The "anything else" question was not posed to Jackie for the fourth and fifth session.

Ken described the first session as "quite good" (p. kg2 350). He felt that providing everyone participated and "put in" (p. kg2 356) they would achieve something. Ken's focus appeared to be verbal discussion and debate. He did not mention anything about written input. Ken stated "whatever we're going to get out of it, is only going to come by discussion and debate. Not people not talking or not debating things." (p. kg3 361-363). He used the term "just headings, yes, no" (p. kg3 363-364) to represent a more superficial discussion and this seemed to describe the headings that they had come up with in the session. Note that in Ken's third interview he distinguished the term "debate" as referring to discussing individual points in depth, which he felt had not occurred in that session. Thus it seemed that the two or three minutes of discussion associated with the discussion and organisation of brainstormed ideas did not constitute a debate as far as Ken was concerned. Ken's verbal orientation was noted in several ways. Ken was one of the most verbal of the participants during the sessions, as noted by the researcher during observation. Additionally, Stan (p. sb3 160-183) commented on how the group accommodated Ken's verbal skills and that Ken was reluctant to use the computer to participate.

In the interview post session two, Ken described the difference between the second and first session in that the former was looking at the "future" whereas the latter was looking at the "now". Otherwise he saw "the basics" (p. kg3 611) as being the same. Interestingly, he elaborated on things being easier in the second session. Ken stated "the first time...you don't know what's expected, you don't know where you're going...and once you've been down that road it's always easier the second time" (p.

kg3 619-622). This reflected the ease associated with familiarity. The first GSS activity being unknown, whereas the second GSS activity having the advantage of the first session experience.

Ken was not posed the "anything else" question following sessions three and five.

With respect to the fourth session, Ken compared the session with the previous, (which had been characterised by confusion) and felt that it was a lot better and "at least we were getting somewhere" (p. kg5 815). He thought that this was a view held by most of the group.

Liam was not posed the "anything else question" post session one, three or five.

In the post session two interview, Liam described some concerns with respect to the coming session on "strategies". Terms he used associated with the concern included "bothers me" (p. lf3 985), "got me a bit peeved" (p. lf3 995-996), "bit of a worry" (p. lf3 1010), "don't know" (p. lf3 990), and "not looking forward to that one" (p. lf3 996). He noted that the coming session appeared more critical than the first two in that changes were likely to be made in their work situation and a lot of them would not like the changes. He expressed a lack of knowledge and confidence in how to come up with strategies to get to the future. Liam also noted that "solving problems" (p. lf3 1025), "isn't for me" (p. lf3 1026), and "I don't like that style of work" (p. lf3 1026-1027). Liam's foresight in terms of fears about the coming session proved to be quite accurate. Although this could have been a self fulfilling prophecy for Liam, others in the group also proved to be confused and lost in session three and likely some of the factors associated with that confusion were being identified by Liam, ahead of the session.

Liam did not have anything else to add about the fourth session.

In contrast to Liam, Peter noted in the second interview post session one, that he was looking forward to the next session in terms of coming up with some strategies. He was keen to hear other people's views. "I'd certainly like to hear what other people's ideas are." (p. pm2 649-650). Peter had some set ideas but felt it would be good to put everyone's views in as a group in order to come up with something constructive at the end.

Peter did not have anything to add about the second session.

Post session three, Peter described some follow up discussion that he had with the manager Stan, outside the session, regarding looking at a " few realistic targets" (p. pm4 742). He noted that the sessions were "already starting to show some results" (p. pm4 748-749) , all the issues were "heading in the same direction" (p. pm4 747), and the supervisors were starting to feel they now had some direction and goals to achieve which they hadn't in the past. Peter felt this was a positive coming out of the activity. Peter seemed to be realising benefits of the process in terms of their workplace.

With regard to session four, Peter reflected on the whole process and felt he had personally gained and so had the department. In terms of personal gain he described learning associated with "ways to run meetings" (p. pm5 1315-1316) and that he could use that learning in the future. He felt the process was a good "guidance" (p. pm5 1307) and "grounding" (p. pm5 1311) and they would be able to "refer back to different processes" (p. pm5 1313). Thus there appeared to be two important points made here, one was personal and "organizational" learning, the other was the process being a good guide and starting point. Given that Peter was the second in charge and hence acted in a managerial role, he likely had a personal interest, from his work function perspective, in the process and its application in their department.

Peter was not posed the "anything else" question in the final interview.

Stan was "really happy" (p. sb2 483) and "very positive" (p. sb2 484) with respect to the first session. These feelings were associated with his perception that "everyone else seemed to feel the same way" (p. sb2 487-488). Stan based this perception on the way the group had discussed issues and also their commitment to complete the task even though they had believed they were finishing an hour earlier than they actually did. Stan had described in the first interview how he felt the sessions would be worthwhile if everyone else felt they were worthwhile. So his view in the second interview was consistent - his requirement had been met. The commitment of the group was a factor also noted by the researcher in the pre-GSS briefing meeting. The level of commitment was indicated by the supervisors' willingness to attend the sessions in their own time. Hence Stan's observation of commitment reinforces the view of the group being committed.

Stan continued with his positive feelings when interviewed about the second session. Again, it was based, in part, on his feeling that "the people ... believe they're getting something out of it" (p. sb3 606-607). Additionally, he felt the sessions were giving them a "framework" (p. sb3 610) in which to look at things in more detail. This concept is similar to Peter's comments about a good "guidance" (p. pm5 1307) and "grounding" (p. pm5 1311).

Stan observed that he felt "a bit confused" (p. sa 4 381) after the third session and inquired about the nature of the coming session. He felt that there were some factors associated with the strategy issue of the third session that made it difficult. In particular, everyone had ideas and concerns about the rationalisation issue, they felt threatened by some aspects, and they felt an urgency to deal with the detail of the issue. Stan thought that the participants may have felt that the sessions were delaying them talking about that issue and that had resulted in some "frustration" (p. sb4 409). Thus it seemed that the contentiousness of the rationalisation issue and not dealing with it, may have been associated with the confusion of the third session.

Post session four, Stan indicated "it would be nice to feel that we still had five sessions ahead of us instead of only one" (p. sb5 968-969). He noted again that the sessions were putting them on "the right path" (p. sb5 975). However, he felt that it would be easier and more efficient to get results whilst in the environment of the sessions rather than "doing it ourselves" (p. sb5 979).

Stan was not posed the "anything else" question in the final interview.

Terry found the first session "all a bit of a plus" (p. te2 513). In particular he remarked on getting the hard copies quickly. The hard copies provided a reference for refreshing his memory particularly given the large number of points produced, and this reference was useful as preparation for the next session. He noted the advantage of the data projection by comparing it to using a whiteboard, "which would be a waste of time by the time you change things around" (p. 532-533). In his speech a number of "efficiency" factors were mentioned, for example - "hard copies quickly" and "not wasting time". He also used the term "enjoyment" with respect to use of the computer. It was interesting that Terry was the only person who referred to the technology in this section of the interviews. This was possibly associated with his concern and anxiety about using the computers expressed as early as in his first interview (pre-GSS), and also his desire to know more about computers. Computers

were something on his mind both before and during the first session, hence he seemed to be sensitive to stimuli concerning them, possibly more so than the other participants.

Terry did not have anything else to add with regard to the second session.

Terry felt that the third session (characterised by confusion) was not as good as the previous session. He did feel, however, that it had been worthwhile in that it brought about debate within the group and "brought out the points that had to be brought out" (p. te4 623-624). Provided that points were going to be discussed and that after the next session they would end up "where we should be" (p. te4 627), he was "quite happy" (p. te4 628).

Terry was not asked the "anything else" question in the final interview and did not have anything more to add in the post session four interview.

The participant responses are summarised in Table 6.3.

Table 6.3 Response summary for code "anyt": Anything else.

Participant	Post session	one	two	three	four	five
Brian	all new the format/ enjoyed session/ good everybody saying their bit/ tired from long day	his concerns compared to others not total thing/ hope main objective comes out at end/ disappointment and concern that miss nity gritty and end result sessions	crick in neck from turning to face public screen basics the same as first session/ easier the second time/ know what's expected where you are going	uncertainty/ unsure whether achieved/ did not understand session and this was said by most people	Brian absent on long service leave	Brian absent on long service leave
Jackie	nothing to add	quite good session/ everyone put in/ need discussion and debate everyone participating to achieve	worried and bothered about the next session on strategies/ solving problems isn't for me, don't like that style of work	participants made comments to researcher	not questioned	not questioned
Ken	nothing to add	quite good session/ everyone put in/ need discussion and debate everyone participating to achieve	worried and bothered about the next session on strategies/ solving problems isn't for me, don't like that style of work	not questioned	better than last session/ at least we're getting somewhere	not questioned
Liam	nothing to add	quite good session/ everyone put in/ need discussion and debate everyone participating to achieve	worried and bothered about the next session on strategies/ solving problems isn't for me, don't like that style of work	not questioned	nothing to add	not questioned
Peter	Peter absent on paternity leave	nothing to add	looking forward to strategy session/ have some set ideas but would like to hear other people's ideas/ put in as a group come up with something constructive	realising benefits of sessions/ showing some results/ issues heading in same direction/ supervisors have some direction and goals	personal gain/ department gain/ learning ways to run meetings/ refer back to different processes/ process good guidance and grounding	not questioned
Stan	really happy/ very positive/ everyone else seemed to feel the same way	people believe they are getting something out of the sessions/ sessions give framework to look at detail	nothing to add	bit confused/ factors contributing to confusion included concern about rationalisation issue feeling threatened and wanting to get to detail of that issue	nice to feel had five more sessions rather than just one/ easier to get results during sessions rather than doing it ourselves/ sessions putting them on right path	not questioned
Terry	all a bit of a plus/ hard copies quickly and as a reference/ screen more efficient than whiteboard	nothing to add	nothing to add	not as good as previous session/ worthwhile for debate/ if points discussed and end up after next session where we should be then he is quite happy	nothing to add	not questioned

6.4.4.1. Discussion of "Anything else"

In summary, there was a good deal of variety amongst participant responses. This might be expected given that they had the opportunity to discuss aspects of the session in the course of interview, prior to being prompted with this question.

A number of responses indicated a theme of the first two sessions going well and then the experiencing of problems in the third session. These responses are consistent with the identification of "confusion" characterising the third session. The foresight of Liam with regard to fearing the third session, and Stan's reflections on some of the reasons for the difficulties were interesting phenomena.

Terry's focus on the technology with regard to session one stood out from all the other participants in the sense that no one else mentioned the technology explicitly. Peter and Stan both described the sessions as producing a guide/framework/grounding for processes in their organisation. Peter mentioned learning how to run meetings and that the process provided guidance and grounding for carrying on in their organisation. This was mentioned post session four and appears consistent with concerns about the future of the process in their organisation identified during the analysis of responses "overall". Ken noted that the second session was easier based on knowing what was expected. This was consistent with the "familiarisation" process uncovered in the analysis of "overall".

6.4.5. Comparisons between sessions

In the course of the interviews, participants were asked to compare sessions. This provided a direct response to the research question concerning changes in perceptions. All participants were asked to compare the second session with the first session. Thereafter this question was posed on an ad hoc basis. The summaries of the responses pertaining to the first and second session comparison are provided below.

Brian found the format of brainstorming and rating to be the same between the first two sessions. He noted that a difference was, "Darryl [the facilitator] and Dianne [the chauffeur] did their play on words...to make a paragraph ... out of all the comments" (p. bw3 154-156). Here he was referring to the process of coming up with a "desired future statement". He found the second session "good" and did not

have any negatives about it. Brian expressed disappointment at the prospect of missing the last two sessions. His main concern was "not being able to put my opinion, input to what I think is relevant" (p. by3 166-167). Brian then went on to describe the sensing of others' views about what the issues were - "the issues that I see from other people" (p. by3 201-203). He noted that he had low morale and self esteem coming into the sessions, associated with work issues, and had been worried about being negative in the sessions. However, he now felt "glad to be here, its good to be the involvement...I'm positive about the whole thing" (p. by3 198-200). A theme with Brian, related to the sessions allowing him to see the whole picture, possibly putting his own immediate concerns into perspective. Brian said " 'Oh, I really am involved in all of this.' We're looking at a total structure of the whole Department, not just Brian coming in here with blinkers on, looking at his problems that he's got at the moment." (p. by3 340-343).

Brian found the second session *easier* particularly with regard to the brainstorming and rating activities. He said "You're used to it, you've got more confidence, you've realised what they need, what we're looking for" (p. by3 423-424) and "you understand that [the rating] completely" (p. by3 426-427). Brian noted that he had been prepared for the brainstorm and had written down six items while the facilitator had been talking, and when it came to typing them into the computer he had "heaps of time to fix them, all the things" (p. by3 422).

Hence familiarity, confidence, ease and understanding were all aspects associated with Brian's perception of changes from the first to the second session. In looking back, he noted a change from being worried about being negative prior to the sessions (this was associated with work issues he had been facing) to feeling positive and glad of the involvement. Sensing others' concerns and the "big picture", hence putting his own concerns in perspective, appeared to be associated with this change. In looking forward, he was disappointed that he would miss some sessions and hence not be able to state his point of view.

Jackie stated that "generally people were a bit happier about using the computers and they seemed to handle them a lot better. Maybe they'd⁴⁷ also had time to reflect on what had happened in the first session and therefore were a bit more prepared for the second one and had some ideas that they had ready to put in." (p. jt3 37-42)

⁴⁷ The researcher's impression was that Jackie used *they* to refer to the supervisors Brian, Ken and Terry. Earlier, she had referred to their lack of typing skills.

The latter point is reinforced by Brian's comment above that he had ideas ready to go in for the brainstorm, and also that he was familiar with what was required, based on the experience of the first session. Like Brian, Jackie found the format similar noting the way the agenda ran, the way discussions were carried out and how the facilitator "brought them back in and reiterated what we were saying" (p. jt3 65-67). Her only difference in format was, like Brian's, the desired future statement. Here she noted that the facilitator had produced a draft rather than the group formulating it. This represented a compromise because of the time constraint, however, she felt that if the group had formulated the statement, they "may have been a bit more comfortable with [it] at first" (p. jt3 91-92).

Ken noted that the session was more comfortable the second time around because "you've found your way around the place, you know where to go and park, you know where to find the everything, so it's easier the second time" (p. kg3 66-69). Hence Ken's improved comfort was associated with familiarity of finding his way to the Curtin GSS facility. Ken felt the first two sessions were similar in terms of the "same people in the same place doing the same thing" (p. kg3 85-86) except that the "headings" (p. kg3 59) were different in terms of the first session being the "now" and the second session being the "future". When prompted, he qualified the "same people" remark by noting that Peter was not present in the first session. However, the fact that he only did this after prompting and then his reply to any difference this made was "not particularly" (p. kg3 94), gave the impression that the additional member at the meeting was not an issue to Ken.

Liam felt the second session had been about bringing out their goals or desires in terms of "pet loves" (p. lf3 93) and "pet hates" (p. lf3 96). He noted that subgroups of views by "office staff" and "depot staff" were present in both sessions but were more obvious in the second session. Liam felt that the different views came out in the discussion rather than in the brainstorm. He noted that when the brief brainstorm statements came out "you could have interpreted them any way you wanted", however, "when you actually started to discuss them, that's when you really drew out of people what they were thinking" (p. lf3 139-140).⁴⁸

⁴⁸ The GSS brainstorm software restricted input to 60 characters and the facilitator encouraged participants to capture the core idea rather than the detail. This is what Liam referred to as the "brief brainstorm statements".

Peter did not feel that you could compare the sessions. Rather he saw them as a "series of processes that are being staged so that we can finally come up with some sort of way of going about our business to organise our Department." (p. pm3 383-385).

Stan noted that the process worked more smoothly in the second session because "other people in the group were more familiar with the fact, the way the computing, the terminals were working and what the processes were...so perhaps people got more information into the system as a result of that" (p. sb3 142-147). This view was quite similar to Jackie's view above. Hence familiarity with both computers and processes appeared to contribute to the process being "smoother". Stan noted that Brian, in particular, seemed more comfortable with the computer and had typed in more ideas than in the first session. This was reinforced by Brian's own view of his productivity. Stan felt that Ken did not appear to put any more ideas into the system than in the first session. Moreover, he felt that Ken was more comfortable verbalising his ideas, and both the group and the facilitator had allowed Ken the opportunity to participate in this way.⁴⁹ Stan noted that Peter was present at the session in contrast to the first, and that the seating arrangements were different such that Jackie and Ken were not seated next to each other. This he felt may have given Jackie more freedom to express opinions as she was further away from Ken, who could override her opinions. As with Jackie and Ken, Stan found the processes of brainstorming, discussing and then rating the same between the sessions. Additionally, he felt the facilitator's approach was similar. He noted that the chauffeur participated more in the second session, and that the role of the chauffeur became clearer, particularly her role in interpreting the discussion and typing into the system.

Terry found the structure of the first two sessions similar. He felt that people opened up more in the second session. He stated that they had not got into the "nitty gritty" (p. te3 113) yet and that the sessions were more like "general discussion sessions" (p. te3 114-115). Terry noted that only limited time, "two or three minutes" (p. te3 132), had been allocated to discuss each point and thus there had not been the opportunity to draw out "points that may be in the back of people's minds that haven't come fully forward" (p. te3 126-128).

⁴⁹ This raises the important issue of the management of communication in GSS sessions. A session which restricted participants to electronic communication would be detrimental to those people with poorer electronic communication skills thus compromising the democratic principle of "equal opportunity".

A summary of the responses from participants is presented in Table 6.4.

Table 6.4 Response summary for code "sesncf": Comparison between sessions one and two.

	Post session
	two
Participant	
Brian	format of brainstorming and rating same/ desired future statement different, and done by facilitation team/ second session easier/ used to it/ confident/ you realise what they need/ prepared
Jackie	people more happy about using computers and handled them a lot better/ format similar/ desired future statement different/ statement done by facilitation team rather than participants
Ken	more comfortable second time and easier because you can find your way around/ same people in same place doing same thing only headings different the future instead of the now
Liam	second session concerned goals and desires/ subgroups office and depot present in both sessions more marked in second
Peter	Peter absent on paternity leave
Stan	process smoother in second session as other people familiar with computing terminals and processes/ Peter was present in second session/ seating arrangements were different/ process of brainstorm discuss and rate similar/ chauffeur participated more in second session and role became clearer
Terry	structure similar/ people opened up more in second session

6.4.5.1. Discussion of "Comparisons between sessions"

In summary, a major theme that was shared by Brian, Jackie, Ken and Stan, was that of improved familiarity, comfort and ease from the first to the second session. This was consistent with the theme of "familiarisation" identified in the analysis of "overall". The concepts of familiarity, comfort and ease were associated with the process of the sessions, the use of the computers and in Ken's case, finding where things were. Stan noted that this familiarity had resulted in the process of the session being "smoother". A number of participants had noted greater input of ideas, during the brainstorm, relative to the first session .

A number of participants - Brian, Jackie, Ken, Stan and Terry, recognised the similarity of format or structure between the two sessions in terms of the process of brainstorming, discussing and then rating ideas. This was likely a key aspect in the

participants feeling familiar with the process, the fact that the process of the first session was repeated in the second session, and thus reinforced.

Both Jackie and Stan noted that people handled the computers better than in the first session. Whilst this was an explicit reference to the physical use of the technology, it is interesting that the comments about format and structure represented a more common theme. From a GSS researcher's perspective this points to the importance of structure over technology. This lends support to research that examines structure, for example, Poole and DeSanctis (1990). The technology represents opportunity to structure the meetings, however, actual structuring is mediated by the facilitator, the group and the group process.

6.4.6. Changes across all sessions

In the final interview, the participants were asked how they felt their perceptions had changed over the sessions. This then represented a direct question relating to the research question, "change in perceptions". Although it would be influenced by being a retrospective view, it represented an important viewpoint, that could be considered in addition to the viewpoint of the researcher based on longitudinal comparisons of interview responses. The summaries of the responses follow.

Brian was absent for the last two sessions and was not available to provide a response.

Jackie noted that in the first three sessions there was "marked improvement in getting used to the processes and using the computers and moving along with the direction of the planning meetings." (p. jt6 843-845). She elaborated on this as "feeling comfortable with the way the sessions were and the process of the sessions in general" (p. jt6 871-872). Jackie did note that there were a couple who felt there was a repetitive feel to the later sessions and had become a bit frustrated. Jackie had felt very comfortable with each session but noted that she had felt tired in the last session. Hence Jackie's major changes appeared to relate to familiarity - "getting used to", and feeling comfortable.

Ken noted that they had started off with broad ideas and then narrowed things down to some headings they could work through. He described that they had no

preconception of the process of the planning, only the outcome in terms of a "plan and so on for the future of the Department" (p. kg6 813-814). Ken felt that the process was the "normal way" (p. kg6 824), of tackling things that he had done in the past, that is, the now, the future, and then how to get there. Thus Ken did not discuss feelings or attitudes but rather the process as being normal, and a process of narrowing down.

Liam noted changes in meaning of points that occurred over time. He thought that this might have resulted from discussions in subgroups that took place between sessions.

Peter stated that he was "reasonably comfortable" (p. pm5 1075) to start with but that as time had gone on, he was "more comfortable with the idea and the thought processes". He had felt that the sessions were a good forum to start airing views. He felt that when they got into specifics in their organisation, debate would be more heated and things more volatile.⁵⁰ However, in the sessions there had not been anything of that nature.⁵¹ Peter felt that his comfort had increased over the sessions because he thought they were heading in a common direction and they were achieving something. Halfway through the sessions he thought there was some fear of how they would reach their goal in just the five sessions, and how they would condense everything. However, at the end of the five sessions, he felt comfortable and he thought everyone else did. Hence Peter, like Jackie, noted improved comfort.

Stan had felt unsure at the start as to where they would end up. As the sessions had progressed he had realised that they would be a long way from where he had expected, and that there would be a lot more work to be done. Based on this realisation, he had tried to make the others aware so that their expectations were not too great. Stan felt it had become clearer to him that with this process the issues of involvement, participation, ownership, and consensus were the crucial things. The actual strategy chosen at the end was not necessarily so crucial, and it would vary if using the same people, but with some different inputs or information. Thus Stan's

⁵⁰ This reminds the researcher that the GSS sessions and the interviews are snapshots of continuous interaction between participants. A "deeper" more comprehensive study would involve researching the interaction between sessions, and interaction, prior to and subsequent to the sessions.

⁵¹ The researcher also observed a general lack of conflict. Only on a few occasions when topics such as rationalisation and job descriptions were discussed, did debate become more heated as conflicts between supervisors and management were exposed. The lack of conflict could be explained, as Peter noted, by the nature of discussion being at a broad level where all participants could agree, and a process that had people moving along rather than getting into heated debate.

experience appeared to represent a learning experience about the process and its outcomes.

Terry felt that the sessions had made him look at the organisation overall and had brought out new ideas he hadn't thought of, or ideas he had thought of in the past. Good discussion had taken place and points had been recorded. He had found it good from a personal view to discuss the points both for and against. He felt his ideas on the concept of restructuring had not changed except for having a few more ideas. Terry felt that things would get interesting as they considered the next stage of the process in their organisation. He felt the process had been good at getting out the positives and negatives and weighing them up against each other, without getting bogged down on negatives that had little influence on the organisation.

A summary of the participant responses is provided in Table 6.5.

Table 6.5 Response summary for code "chan": Changes across sessions.

	Post session
	five
Participant	
Brian	Brian absent on long service leave
Jackie	first three sessions marked improvement in getting used to the processes and using the computers
Ken	started with broad ideas and then narrowed down
Liam	changes in meanings took place over time possibly due to subgroup discussions between sessions
Peter	started reasonably comfortable and got more comfortable with the idea and the thought processes/ halfway there was fear of how they would reach their goal in just the five sessions
Stan	unsure at start as to where they would end up and as sessions went on he realised they would be a long way from where they expected and there was a lot more work to be done/ became clearer that involvement participation ownership and consensus were crucial aspects rather than the particular strategy chosen
Terry	sessions made him look at organisation overall/ new ideas/ good discussion/ things would get interesting in their organisation as they consider the next stage/ his ideas on restructuring had not changed/ process good for examining positives and negatives without getting bogged down on negatives that had little influence on the organisation

6.4.6.1. Discussion of "Changes across all sessions"

Consistent with the "familiarisation" theme, Jackie noted improvement in getting used to the processes and using the computers. She felt that this was associated with the first three sessions. Peter noted improved comfort with the "idea" and the processes of thinking. This is fairly similar to Jackie, although more specific.

Stan had found the process a learning experience in terms of changing expectations of the outcomes of the process.

The other participants tended to summarise the process. Ken described the sessions as a narrowing down process. Terry described a forum of discussion and weighing of positives and negatives.

Liam described changes in meaning occurring over time. Liam thought that discussions in subgroups between sessions had contributed to this. This points to the fact that process is not confined to the sessions but rather also occurs between sessions. Furthermore, the process is present before the sessions and continues after the sessions. In multiple GSS session activities such as this one, the management of inter-session processes is an issue for facilitators to consider. This management may consist of decisions about the timing of sessions. Spacing out sessions may lead to participants benefiting from reflection and discussion. On the other hand the facilitator may lose control over processes taking place between sessions, leading to unpredictable outcomes.

6.4.7. Technology

Participants were asked for their views concerning the technology at the sessions including the computers and the visual display.⁵² The summaries of the responses are provided below.

Brian described himself feeling "overawed" (p. by2 607, 611) with respect to the use of the computers in the first session. This he associated with his lack of previous use of computers. He noted that even the opening of the laptops had been a concern in

⁵² The visual display was a computer screen projection of public information from the chauffeur station, onto the projection screen.

terms of "break[ing] something" (p. by2 619-620). Brian described the novelty of the experience - "it's a new world, its new, it's totally new" (p. by2 627) and "Wow, you know, I'm using these things now which I've never had that need to before" (p. by2 628-630). However, Brian's awe had changed "immediately" (p. by2 635) when he realised their input was "just a case of pushing a button and entering it, we didn't have to program anything." (p. by2 636-637). Brian had realised that he was not going to be asked to do anything that he wasn't capable of doing. Hence in a sense he was able to work within his "comfort zone" - "So it was a pleasure to use it because obviously there was no thought needed" (p. by2 655-656). Brian used the terms "toy" (p. by2 655) and "playing" (p. by2 639) to describe the computer and the use of it. Hence overall it seemed that Brian's initial feelings of awe had quickly subsided as he realised that it was easy for him to undertake the tasks required. Brian did not mention the visual display and only made fleeting reference to the printer. Given that each participants' hands-on interaction was with his or her computer, it was not surprising that this facet dominated Brian's response.

With the second session, Brian found the use of the computers easier - he was more relaxed and thus happy to use them. The improved ease of use was associated with familiarity - "you know the system, you know what you're putting into it, you know how it works, you know what you're doing, you can use it" (p. by3 889-892). Thus there appeared to be a relationship of experience, knowledge, familiarity, ease of use, feeling relaxed and feeling happy.

Brian was not asked about the technology in his final interview.

In contrast to Brian, Jackie did not express any feelings of awe with respect to the computers in the first session. This probably reflected her greater experience of using computers, which were not "new" for her. Jackie's response was that she was "quite comfortable looking at it and using it" (p. jt2 717-718). She felt she understood how "things that we were inputting were going into the main computer and then being manipulated and then being put up on the screen" (p. jt2 725-727), thus she did not have to think or worry about the technology. Hence, Jackie felt "quite comfortable with it" (p. jt2 729).

Post session two, Jackie again expressed feeling "fine" (p. jt3 506) and she didn't note anything different compared to the first session. Jackie did note that the screen

projection was not that crisp or clear, and it was at a marginal stage where people without good vision might experience some difficulty.¹

Post session three, Jackie seemed to refer to other's improved comfort by stating "People were obviously a little bit more comfortable with using them [the computers], getting used to them." (p. jt4 361-363).

Jackie was not posed questions about the technology in the penultimate and final interviews.

Thus it appears that Jackie, being more experienced with computers than Brian, who was a computer novice, did not experience the feelings of awe, nor the feelings of getting easier, familiar and more relaxed that Brian did. This may represent some of the differences between computer experienced and inexperienced participants, that GSS meeting designers, particularly facilitators would need to be aware of, and cater for. Actions that facilitators might take, could include identifying an individual's comfort with computer use and providing support where comfort levels are low. This support might be reassurance, and warm-up exercises. It was interesting that Brian's awe quickly subsided when he realised they would be working within his "comfort zone". Thus participants obtaining early feedback on task requirements, say through a warm-up exercise, might gain necessary reassurance to feel comfortable.

In the post session one interview, Ken repeated the attitude toward computers he expressed in the pre-GSS interview - "Computers are great in their place. You know my feeling on computers." (p. kg2 318-319). In the first interview, Ken had stated "I don't like computers" (p. kg1 669), "I increasingly believe people run this world not computers" (p. kg2 670-671), and "Computers only make work" (p. kg1 671). When prompted about computers within the session, Ken used the terms "great" and "good" to describe the technology, however, he felt that "with modern technology you expect to be able to do this sort of thing in this day and age" (p. kg1 331-333). Overall, Ken held a dislike of computers possibly related to a feeling of loss of control of people to computers.

¹ The readability of computer data projection is a continuing challenge for GSS activities. Colour projectors capable of projecting in environments with some ambient light can cost \$10 thousand to \$15 thousand dollars. Even with these relatively expensive projectors, ambient light has to be controlled and focus and text size has to be attended to. At the time of this study a relatively cheaper, monochrome LCD plate projection was used.

Post session two, Ken repeated that he felt the technology in the session was "good" (p. kg3 559) and again - "this modern day and age with technology the way it is nothing astounds me" (p. kg3 560-561). Ken noted some minor problems with the view on the screen and recovering some ideas during the brainstorm, however, he felt these problems were trivial.

Ken was not posed the technology question post session three.

After session four, the researcher asked Ken to elaborate on a metaphor that he had used for the computers upon entering the Facility room in the first session. The metaphor he had used was "anchors". When prompted about this, Ken explained, "Well they're good on the boat, you throw them over the boat and you use them as an anchor." (p. kg5 623-624). In elaborating, he reiterated the prominence of people over computers. "It's people, people make this world. Boy, girl...That's what makes this whole world go round. Not computers." (p. kg5 631-632). He went on to explain that the features of computers were "recording" (p. kg5 634), "getting back information" (p. kg5 634) and "control[ling] mechanical functions" (p. kg5 637). However, as far as Ken was concerned, "in people things, people are number one" (p. kg5 637-638). When the researcher prompted Ken about computer use over the course of the sessions, he responded, "You still can't do away with your piece of paper and pencil" (p. kg5 7644-645), in reference to use at the sessions of hard copy reports and pencils so that participants could scribble notes in the course of the session. Importantly, Ken felt that the sessions "could have been carried out just the same without them [the computers]" (p. kg5 668-669).

In the final interview, Ken described the use of the technology as "Fine. It all works well." (p. kg6 679). In terms of his personal use, he noted that he had problems finding the keys and in reflection he felt "it most probably did inhibit me a bit" (p. 699-700). Ken then elaborated on the concept of "control". "I don't like them [computers] controlling me, I like to control them" (p. kg6 701-702). He felt "because they're pre-programmed...you've only got partial control" (p. kg6 707-709). Ken used the analogy of machinery, such as bull-dozers, which he was familiar with and had complete control over. When asked, if he had the same experience with computers as with machinery, how would he have felt, Ken replied "I'd have most probably felt more comfortable, that's all." (p. kg6 722). In elaborating on the controls or bounds within the process they had undertaken, Ken noted positive

aspects in that "it keeps you on the track of where you're going" (p. kg6 739-740). However, he thought it also "possibly...limits what you can do" (p. kg6 741).

In summarising Ken's perceptions of the technology, there are three major aspects. Throughout the sessions he maintained his "anti-computer, pro-people" attitude that existed prior to the sessions. During the sessions, he maintained that the computers had worked fine and had been good, however, he felt the sessions could have been carried out just the same, without them. His anti-computer attitude seemed, in part, to be related to his ability to "control" them, rather than the other way around.

Post session one, Liam like Jackie, and unlike Brian, did not express awe with regard to the technology. Unlike Ken, Liam did not express an anti-computer attitude. In fact he had been "pro-computer" in his pre-GSS interview. Unlike Jackie, Liam did note that the use of computers in a meeting situation was new for all of them. This newness "added a bit of stimulus to it" (p. lf2 424).

Liam's positive aspects about the technology included the hard copies being available "at the right time" (p. lf2 416-417), their immediacy, and their usefulness as a reference. He recognised the anonymity of ideas providing protection from "harm" (p. lf2 428) but also allowing "things to get going" in terms of discussion. Liam described two forms of stimuli at meetings, one being "verbally" (p. lf2 436) and "the other way" (p. lf2 436-437), referring to the use of the GSS technology. He felt the latter "gives people an opportunity to put a point of view forward" (p. lf2 437-438). Liam noted that ideas came up on the screen and "piggybacking" was possible. As a possible downside, he noted that poor typing skills could inhibit the thinking process during the brainstorm. When prompted about typing skills in the group, Liam responded "Slow, but ok" (p. lf2 454). He referred specifically to two of the supervisors, Ken and Brian, however, he felt they had got out "what they wanted to" (p. lf2 468). Hence in contrast to Brian, Jackie and Ken, Liam had a fairly rich set of responses relating to features of GSS technology that designers and researchers recognise, including anonymity, opportunity, "instant" hard copies, and piggybacking during brainstorming. His positive attitude toward computers and relative comfort with their use are likely associated with the responses above. Additionally, it was observed at sessions that Liam was one of the least verbal, hence having another means of communication - "the other way" (p. lf2 436-437), may have been more useful to Liam than other participants. This could have increased his recognition of features of the GSS technology as being personally useful.

With regard to the second session, Liam used the terms "great" (p. lf3 717) and "wonderful tool" (p. lf3 732) in describing the use of the technology. Again, he mentioned the immediacy of the hard copies - "see the document in one instance and in the next instance it's printed out for you" (p. lf3 747-748). He also referred to the "instant" (p. lf3 729) nature of the facility either on screen or in hard copy form, and the ability to change things while people were talking. Liam felt the facility would be useful in their work environment with regard to being more productive - "we'd probably get a lot more out in a shorter amount of time" (p. lf3 741-742). A feature that Liam had not previously mentioned was a "common view". He said "I think it was a very good way of everybody seeing at the same time whatever we're discussing" (p. lf3 715-717). Liam repeated the statement that none of them had been in a meeting "like that before" (p. lf3 718).

Interestingly, with respect to the third session, which Liam described as "confused", Liam felt that the technology could have helped overcome the difficulties they experienced. He said "if ever we needed it [the technology], then was the time, that session there proved how valuable it was" (p. lf4 523-525). His rationale was that the technology was needed "to get the flow started of ideas, get the consistency, the whole thing going, to get a diversity going" (p. lf4 529-530). Note that in the third session, the facilitator began the session by inviting the manager to publicly state some strategies. A number of participants later remarked that this was not the ideal way of doing things and suggested that they should have stuck to the format of private brainstorm via the technology - a process that they had undertaken in the previous two sessions.

Post session four, Liam remarked on his preference for bar graphs as opposed to a pie chart display of the criteria weights.

Liam was not posed the technology question in his final interview.

Peter shared some of Brian's feeling of awe, after his first session (which was the second session for the other participants), describing the technology as "quite fascinating" (p. pm2 552). He reiterated the fear he had of computer technology that he had mentioned in his pre-GSS interview, but also a desire to discover more. He described being "a little bit worried" (p. pm2 556) initially in the session, however, he was "quite comfortable" (p. pm2 557) once he had used the computer. Losing his

initial fears had been associated with not being "singled out to perform anything" (p. pm2 576) and also that "everybody was doing the same thing" (p. pm2 577). These aspects seem like "performance fear" associated with lack of experience with the environment in which Peter had been placed. Peter noted that he'd felt more comfortable as time went on. Thus Peter appeared to have a similar experience to that of Brian - feelings of fascination, awe and fear, the latter being quickly lost as they realised they could perform appropriately. Peter and Brian also shared the feature of being computer novices. Although Ken was a computer novice he did not report the same feelings, however, the researcher felt this may have been partly masked by his dislike of computers. Ken did in a sense have a "fear" of computers with regard to his perception that they had "control" and were "taking over".

Peter was not posed the technology question post session three.

Post session four, Peter noted the speed at which information came to them, particularly the receipt of the hard copies. He used the terms "clear" and "concise" several times and noted that the screen could be switched on and off so "it doesn't distract you" (p. pm4 543). When thinking of manual replacements, Peter noted the use of a whiteboard, however, he observed it would need to be large and there would be a lot of writing and rubbing out. Peter was prompted as to how he would feel if the individual terminals were taken away. In reply, he noted that there would need to be a substitute for the "weightings [and] scorings to compile those graphs" (p. pm4 559). In the subsequent discourse he concluded that having individual terminals allowed for "individuality" (p. pm4 578) in that you were protected from the influence of others and hence could say "what you really think" (p. pm4 618) rather than just thinking along the lines of "whatever they've just said" (pm4 600-601) or "following a bit like a sheep" (p. pm4 612-613). Peter's comments here could be related to reducing groupthink (Janis, 1972), in the sense that Peter felt the individual terminals provided for individuality, preventing a person, at least initially, from being influenced by everyone else.

In his final interview, Peter felt the technology "was second to none" (p. pm5 961) , however, he noted that he hadn't experienced a lot. He felt the use in the session had been "really well done" (p. pm5 963). Peter thought he had "gained a lot out of it in that way" (p. pm5 965), which seemed to refer to the fact that he had been a computer novice and now had some insight. Aspects that impressed him he described as "speed" (p. pm5 969), "clearness", "conciseness" (p. pm5 970), and the

ability to change wordings rapidly. The ability to have hard copies "within a very short space of time" had been beneficial in terms of being able to "read and follow through" (p. pm5 978). Peter thought it was useful to have the ability to work the ideas from "a huge list" (p. pm5 992) of points through to a list of importance such that they could focus on the most important.

Hence Peter, like Brian, shared some of the computer novice experience of fear and then comfort in the first session. Over time, Peter, like Liam, appreciated various features of the technology including the speedy production of hard copies, the ability to make "instant" changes, and the usefulness of the screen. The feature of having individual terminals was seen by Peter as providing protection from influence, whereas Liam saw it as providing opportunity and the "other way" of communicating.

Stan was a relatively experienced computer user, using a keyboard and terminal on a daily basis. Thus it was expected that he would not experience worries or fears and the associated improved comfort that the computer novices experienced, with respect to use of the technology. This expectation was supported by his interview data. Stan indicated that the technology was "good" (p. sb2 347), "very effective" (p. sb2 351) and "appropriate" (p. sb2 353). Like Liam and Peter, he noted the speed of presentation - "people could clearly see the information they were typing in being presented very quickly" (p. sb2 351-352). He noted that one or two people had been unfamiliar with the keyboards but had accepted "that that's what they were doing" (p. sb2 355-356). This remark, raises a facilitation issue for those GSS sessions where one or more of the participants refuses to participate via a terminal. The facilitator would have to be prepared to either persuade the participants to use the terminal, or enter ideas on their behalf, or change to a manual process. Stan shared with Liam and Peter his positive attitude about the hard copies, in particular "getting the print-out so quickly at the end" (p. sb2 361). Attributes he associated with the hard copies included being able to "take away" (p. sb2 366), "refer to" (p. sb2 367) and "recap" (p. sb2 369), otherwise "I could have easily lost some of that stuff we did...if I hadn't had that to refer to straight away" (p. 372-373). In this sense the GSS technology appeared to be providing a form of "memory" via the hard copy reports.²

² Nunamaker et al. (1993) report that support for *group memory* through recording of information is a key feature of GSS. "Group memory enables members to pause and reflect on information and opinions of others during the meeting and serves as a permanent record of what occurred" (p. 145)

Post session two, again Stan felt the technology was "very good" (p. sb3 561). He observed that "being the second session, everyone was much more comfortable with it" and hence the session went "more smoothly" than the first. However, he did not feel there had been any problems with the first session. The recognition of improved comfort is consistent with the responses from Brian and Peter.

With respect to the third session, Stan noted that it was "good" (p. sb4 312) and repeated that it was good to get the print-outs. Like Liam and Peter, he referred to the immediacy of the presentation of ideas on the public screen. The third session was the session characterised by confusion, and in part, Stan felt that this was related to him having publicly presented two ideas, before the group started generating strategies. These two ideas had "focussed everyone too much" (p. sb4 317). Hence in retrospect, Stan suggested that they may have been better to have "stuck with the brainstorm" (p. sb4 320). Although Stan recognised that this would have taken longer, he felt it might have been better to have got everyone's "obscure ideas thrown into a pot and then sorted out" (p. sb4 321-322). Stan felt that this would have maybe "made more sense to them" (p. sb4 322). The perception of the brainstorm via the technology, being a better process, was shared with Liam.

Stan was again positive about the technology, post session four. In particular, he felt it helped everyone "focus onto the issue" (p. sb5 772) rather than getting "sidetracked" (p. sb5 774) as with normal discussion. He associated the focus with the public screen which enabled people to see "the same thing" (p. sb5 783). Indeed, Stan used the term "communal screen" (p. sb5 785), to describe the projection on the wall. The ability to see the same thing while discussing it was a perception that was shared with Liam. Stan described a similar perception to Peter's description - "protection from influence". Stan stated that the technology provided "everyone the opportunity to put in without being overridden by other people verbally" (p. sb5 804-806). He noted that the points could still be "lost" in later verbal discussion, however, "at least they were put up for discussion" (p. sb5 827). Stan described the dynamics of some people in the group to illustrate how some people had strong characters and beliefs, and were happy to debate verbally whereas others would tend to back away. This latter situation would lead to losing that person's input. Stan felt that the "opportunity" aspect was valuable to their group whereas anonymity had not been so crucial.³

³ In traditional meetings there are a variety of related factors that conspire to reduce the likelihood of an individual putting an idea forward for group discussion. These factors include lack of

In the final interview, Stan confirmed that the technology had again been "good" (p. sb6 743). He noted some problems with the printer (it had run out of toner) during the session but he regarded that as minor. Stan reiterated the value of the "communal screen", the "instant projection" (p. sb6 752), and being able to check immediately "what other people were writing" (p. sb6 754-755).

In summary, Stan reflected the experience of the other computer experienced participants, Jackie and Liam, in his lack of reference to his own comfort of use. Additionally, like them, he noticed that *others* had got more comfortable. Here he was likely referring to the computer novices. Stan consistently mentioned the value of the hard copies in terms of memory and reference, and the communal projection in terms of providing a common focus. The speed of both was seen as an important quality. Stan felt the system provided "opportunity" for everyone to at least get their idea up for consideration and that this was valuable given the capacity for verbally dominant individuals to override others, resulting in losing the submissive individual's input. Stan was positive about the technology throughout the five sessions. His only "negative" had been the lack of keyboard skills of the computer novices, noted in the first session.

Terry was a computer novice and had indicated in his pre-GSS interview that he was worried about the use of the computer in the sessions. Terry did not express a dislike of computers as Ken did, hence it is expected that Terry's experience of the technology should more closely parallel that of the other novices, Brian and Peter.

Post session one, Terry expressed the view that he was still "intimidated" (p. te2 73) and had a "bit of a worry" (p. te2 74) with respect to the use of the computers. He did, however, feel "it was a bit better" (p. te2 67) once he had got used to entering some ideas. The following quote illustrates some of this experience. "I was a bit tense when I got in as to how I was going to handle that computer. Once I felt a bit more comfortable with that and I could see I could do it, I felt more relaxed about the rest of the session." (p. te2 303-306). It seemed that Terry did have a similar experience to Brian and Peter, in terms of fear subsiding and giving way to feeling more comfortable and relaxed. However, his anxiety seemed more pronounced than

verbal skills (delivery and debate), lack of confidence in public speaking, evaluation apprehension, lack of air time, blocks to memory and concentration, and lack of desire (through perceived lack of reward).

the others as indicated by his use of the word "intimidated" and the fact that he had expressed anxiety before the sessions began. Terry noted that he had required and received assistance, and expected that he would receive this in the following session if required. It was observed during the session that the facilitator and chauffeur each spent some time with Terry advising him on entry procedures. It seemed likely that this assistance had helped reduce any extreme negative effects of Terry's anxiety, such as withdrawal from participation.

Despite his fears, Terry expressed numerous positive responses about the technology. He felt the computers were "useful" (p. te2 73). He thought the brainstorm and the anonymous manner had been "good" although he did not elaborate on why this was the case. Terry particularly liked the evaluation phase which he described as the "pointing system" (p. te2 81). In this respect, Terry was unique among the participants in expressing this view in response to the technology question. He felt the evaluation process was "constructive" and he noted it combined inputs "so quickly". In reference to the graphs Terry noted "you could see how other people were maybe thinking as well as to whether you were thinking as a group together on the same sort of track" (p. te2 83-86). Terry seemed to be expressing the use of the graphs in the evaluation process in "sensing" others' thinking and then comparing one's own thinking. The graphs, which show the distribution of participant responses, are often used as a diagnostic tool by facilitators to discuss consensus, disagreement and ambiguity. This is done informally by visual inspection rather than via a formal explicit statistical measure. With regard to the distributions, Terry noted that "everything was within a fairly close block" (te2 88-89). This is the kind of informal visual inspection used by facilitators to comment on consensus or otherwise. Terry also noted that the evaluation process had "made me think a little bit more about what you'd already talked about" (p. te2 97-98), thus it appeared to be a stimulus for thinking. Terry had "enjoyed" (p. te2 105) the evaluation process.

As with Liam, Peter and Stan, Terry found that getting the hard copies quickly was good. Terry also associated the attributes of "reference" (p. te2 523), "memory" (p. te2 524) and "refresh" (p. te2 524) with the use of the hard copy. The ongoing nature of the sessions probably highlighted the need for a record of the previous sessions that may have been less apparent in a single GSS session. Terry described the advantage of the screen compared to the use of a whiteboard, the latter being less time efficient, particularly with regards to editing.

Post session two, Terry reported improved comfort - "I felt a little bit more comfortable" (p. te3 539) and "I didn't find it particularly intimidating" (p. te3 545). This was related to his improved knowledge of the situation - "the first time ... I really didn't have a clue what I was doing" (p. te3 543-544), and "this time I had a better idea what I was doing" (p. te3 544-545). Terry referred to the screen and the ability to see what one had entered, "fairly quickly" (p. te3 547). He again referred to the hard copies as a reference source but this time it was for use during the session, for the evaluation phase rather than as a refresher between sessions. The facilitator had hard copies of the word processed outline available for the participants while they undertook the evaluation of headings extracted from the outline. The objective of this was to allow participants to remind themselves of the detail and hence meaning associated with a particular heading. Terry obviously noted this use and described it as, "you really need to research, quickly back through those headings as to what really came under them because that was often the more important part than ... the actual title" (p. te3 552-556). Overall, Terry felt the technology "works quite well" (p. te3 538-539).

With regard to the third session, Terry noted that he didn't use the technology much within the session compared to his previous use. The third session involved the participants in two brainstorming sessions both of which were characterised by few ideas. There was no evaluation of ideas. Thus personal use of the computers was much less than in the previous two sessions where there had been more prolific brainstorming, and the evaluation module had been used. Again he stated a positive attitude toward the technology - "that system always, I mean, it works well" (p. te4 556).

Post session four, Terry repeated his positive attitude toward the technology and noted that he "enjoyed" (p. te5 857) the system. When prompted about his enjoyment, Terry noted the "novelty" (p. te5 862) of the system for him and the fact that he had been able to work within his "comfort zone". He found the use of the system "satisfying" in the sense of job satisfaction. Terry noted that this was a personal thing which would well differ to someone who disliked computers or who was experienced and used them on a daily basis. This was an insightful observation, as noted previously, Ken was one of the participants who disliked computers and maintained that attitude. The computer experienced users, whilst not commenting on their personal use of the computer, did discuss features of the system that related to the use of computers, in what was for all of them, the novel situation of a computer supported meeting.

When probed about exceeding his comfort zone, Terry noted that he would have been "worried" (p. te5 889), not feel "comfortable" (p. te5 891), and that "it would probably change the whole, my whole concept of the session" (p. te5 892). Being able to "gradually work in" (p. te5 893) had been important. Terry's responses thus provide some credence to there being an issue for facilitators with regard to the management of participants' concerns about the use of the computers. In the case of an anxious computer novice like Terry, there appeared to be a fine line between positive participation and otherwise. Provision of help, reassurance, and being seen not to exceed a participant's comfort zone, including allowing a participant to proceed gradually, all appeared to be factors associated with positive attitudes for an anxious computer novice. Terry described the passage of his comfort from intimidation in the first half an hour of the first session to feeling more comfortable, although occasionally making mistakes such as "forgot to hit the old f10" (p. te5 904) through possibly becoming "overconfident" (p. te5 907). Terry associated feeling more relaxed through being more comfortable with the technology.

In his final interview, Terry repeated the attributes of being able to make instant changes with the screen, and the provision of hard copies quickly, particularly with regard to aiding with interpreting meaning during the evaluation processes. As with the previous four sessions, he felt the technology "worked well" (p. te6 793). Terry observed that he felt "pretty comfortable" (p. te6 795) with the use of the technology at the end of the five sessions.

A summary of the responses of the participants is provided in Table 6.6.

Table 6.6 Response summary for code "tech": Technology (first of two pages).

	Post session	one	two	three	four	five
Participant						
Brian	overawed/ worried about breaking something/ it's a new world totally new/ awe changed when realised input was just pushing a button and entering it/ toy/ playing/ pleasure to use no thought needed	use of computers easier/ more relaxed/ happy to use computers/ know the system what you are you are putting in how it works know what you are doing you can use it	not questioned	Brian absent on long service leave	Brian absent on long service leave	Brian absent on long service leave
Jackie	quite comfortable looking at it using it/ understood how things went to main computer manipulated and shown on screen didn't have to worry about it	fine/ nothing different to first session/ screen projection marginal clarity	people more comfortable using computers getting used to them	not questioned	not questioned	not questioned
Ken	computers great in their place/ you know my feeling on computers/ great and good in session/ modern technology expect to be able to do this sort of thing in this day and age	good/ modern day and age with technology nothing astounds me/ trivial problems with view on screen and recovering some ideas during brainstorm	not questioned	anchors good on a boat/ people make world go round not computers/ computers good for recording getting back information controlling mechanical functions/ in people things people are number one/ you can't do without your paper and pencil/ could have done sessions just the same without computers	anchors good on a boat/ people make world go round not computers/ computers good for recording getting back information controlling mechanical functions/ in people things people are number one/ you can't do without your paper and pencil/ could have done sessions just the same without computers	fine it all works well/ problems finding keys probably did inhibit me a bit/ I don't like computers controlling me/ pre-programmed only got partial control/ boundaries on process keeps you on track but possibly limits what you can do
Liam	use of computers in a meeting situation is new to all of them added stimulus/ hard reference/ anonymity protects from harm and got things going/ can get stimulus from people in meetings verbally or this other [computer] way/ opportunity to put view forward/ piggybacking off ideas on screen/ poor typing skills could inhibit thinking/ typing skills in group slow but ok	great/ wonderful tool/ immediacy of hard copies/ instant nature of screen facility/ change things while people talking/ pity we don't have the GSS facility in work environment probably get more done in a shorter time/ everyone could see at the same time whatever we were discussing/ none of us had ever been in a meeting like that before	if ever we needed it then that was the time that session proved how valuable it was/ to get the flow the consistency the diversity	good/ in hindsight would have preferred bar graphs to pie chart	good/ in hindsight would have preferred bar graphs to pie chart	not questioned

Table 6.6 Response summary for code "tech": Technology (second of two pages).

Participant	Post session				
	one	two	three	four	five
Peter	Peter absent on maternity leave	quite fascinating/ bit of a fear for it/ bit worried at first quite comfortable as time went on/ get used to up to speed and understand them/ lose the fear/ weren't singled out o perform anything/ everybody doing the same thing	not questioned	speed of hard copies/ screen can be switched on and off so it doesn't distract you/ whiteboard would involve lot of writing and rubbing out/ computers did weighing scorings and compiled graphs/ individual terminals allowed for individuality protected from influence rather than following a bit like sheep	technology second to none however had not experienced a lot/ really well done/ speed of information/ clarity/ conciseness/ rapid changes possible/ hard copies quickly could read and follow through/ work ideas from huge list through to a list of importance
Stan	good/ very effective/ appropriate/ speed of presentation/ one or two unfamiliar with keyboards but accepted that that's what they are doing/ print-out quickly at end to take away/ refer to/ recap otherwise could have lost some of that stuff we did	very good/ being second session/ everyone was much more comfortable with it hence session went more smoothly than first	good/ good to be able to throw ideas up on the wall straight away and get the print-outs/ better to have started session with brainstorm/ by putting up my two ideas it focussed everyone too much/ throw everyone's obscure ideas into pot and then sort them out/ maybe made more sense to them	went well/ good tool/ helps discussion/ clarifies things/ keeps everyone focussed/ looking on wall and seeing what you're talking about helps you focus/ anonymity not so crucial with us/ opportunity to put in without being overridden by other people verbally/ at least point is up for discussion	good/ went well/ minor hiccups with printer/ communal view/ instant projection so can check what other people writing
Terry	intimidated/ bit of a worry/ not computer literate/ require assistance / bit tense as to how to handle that computer once I felt more comfortable about that I was more relaxed about the whole session/ computers useful/ like the pointing system, constructive, quick, see how others thinking and whether thinking as a group on the same track/ evaluating made you reflect/ enjoyed the evaluating/ getting hard copies good/ hard copies quick reference, memory refresh/ audiovisual better than whiteboard which would be waste of time given someone writing up and also changes	similar to previous time/ works quite well/ felt more comfortable as had better idea what I was doing/ first time didn't have a clue/ audio visual good to pick it up on screen after putting information in/ hard copies useful as reference for evaluation phase	good/ that system works well/ didn't use it as much as I usually do	worked well generally has right through/ enjoyed the system/ novelty/ never had opportunity to touch a computer/ worked within comfort zone/ comfort improved over sessions/ session one intimidating then improved over first half hour/ still forget little things like f10/ overconfident/ more relaxed over four sessions because more comfortable with the technology/ job satisfaction	worked well/ pretty comfortable by end of five weeks/ good to view on screen and make changes at that point/ get hard copies quickly particularly as reference for assessments

6.4.7.1. Discussion of "Technology"

In summary, all the participants shared the perception that the technology had worked well and had been "good", even Ken, who disliked computers in general and would likely be the first to find fault, agreed with this sentiment.

A difference between the computer experienced participants (Jackie, Liam and Stan) and the computer novices (Brian, Ken, Peter, Terry) was observed. Computer novices experienced awe, fascination, fear and intimidation, particularly in the first part of the first session. These feelings gave way to increasing comfort, and feeling relaxed, as the computer novices gained experience whilst working within their comfort zone. The comfort of the computer novices seemed to be a concern for two of the computer experienced participants, Jackie and Stan, as they both noted the others getting more comfortable.

Typing and keyboard skills were mentioned by several participants. Peter reported (see discussion of "overall") having slow typing skills and not having enough time to input all his ideas. Ken noted in retrospect in the final interview that poor keyboard skills probably had inhibited him a bit. Liam noted the supervisors hunting for keys during their input. However, these aspects did not seem a critical concern within these sessions. In sessions with greater emphasis on electronic communication, however, it seems likely that poor typing and keyboard skills could become a greater issue. The typed input within the sessions of this study was minimal, both through the design of the sessions and also the software design. The brainstorm module, for example, contains a limit of 60 characters for a particular entry. Furthermore, participants are encouraged to keep their ideas to a single word or a short phrase. As an example, in the first session, 53 ideas were brainstormed by the six participants. This would average at about nine words per person. Later in the session there were 34 items rated thus requiring 34 numeric entries from each person. Thus the electronic input for the whole session for each participant was relatively low. However, even with this relatively low input, concerns were raised about typing skills, exasperated by demands to perform in a restricted time period.

Temporally, the main finding was that participants discussed improved comfort and ease of use over the first two sessions.

Several participants noted features of the technology. Hard copies or print-outs and the screen were often mentioned. The quick production of hard copies and their usefulness as a memory jogger and refresher, was consistently mentioned by the majority of participants. Terry was specific in referring to the use of the hard copies as a reference when undertaking the evaluation phase.

The ability to make rapid changes and see these on the screen while people were talking was noted by several participants. Seeing quickly what had been entered was viewed positively. A common focus produced by having a communal screen was described as an attribute. Anonymity was important to one participant and was mentioned by several, however, "opportunity", "individuality", and protection from being "overridden" or from "influence" was described by two of the participants (Peter and Stan) as valuable. The use of the evaluation graphs to "sense" others' thinking and compare with ones own thoughts was described by Terry.

The technology was related to the third (confusion) session by both Stan and Liam. Stan felt it would have been more appropriate to have undertaken a brainstorm to start the session, rather than starting with his two ideas. He felt his two ideas had focussed everyone too much. By brainstorming he felt everyone's obscure ideas could have been "thrown into the pot" and then sorted out. This he felt would have made more sense to the group. Liam felt that the technology would have been valuable to have got the diversity of ideas and the flow going. Thus there appeared to be recognition that the process used (a non-technology process) had failed, whereas a technology process - the brainstorm - might have succeeded.

6.4.8. "Facilitator"

Participants were asked for their views concerning the facilitator, the role played by Darryl, and the facilitation in the sessions. Darryl facilitated throughout the five sessions. Prior to the first session only the client sponsor, Stan, had met Darryl. The other six participants first met the facilitator outside the GSS facility at Curtin, just prior to the start of their session. As judged by the pre-GSS interviews, only Stan used the term facilitator in a sense that approximated the role of a GSS facilitator. The other participants, whilst not using the term, facilitator, had a well developed view of the term, chairperson.

During the sessions, it was observed by the researcher that the facilitator played a prominent role. He was verbally dominant at each and every session. He was the only person standing in the room during the sessions. He was usually at the front of the room, at the open end of the U shaped seating arrangement, adjacent to the public screen and thus was clearly visible to the participants. There were many times when Darryl was the only person talking, for example, when introducing a process, explaining a public screen, or ending a session. He was the most mobile of the people in the room, moving around the room, writing things on the whiteboard, and gesticulating with his hands. The following are the summaries of the participants' responses concerning their view of the facilitator.

Post session one, Brian used the term "marvellous" (p. by2 215, 229, 233) to describe the facilitator and that he, Brian, was "in awe" (p. by2 233). Brian observed that the facilitator "led the way" (p. by2 221), "knows exactly what you're trying to say" (p. by2 224-225), and was "getting you to say what you think" (p. by2 226). Thus Brian indicated two qualities of the facilitator - leading the way and supporting people's expression. Brian noted that he himself had "difficulty expressing himself" (p. by2 227).

Post session two, Brian indicated that he had felt "defensive" (p. by3 476) in the first session because he did not understand words like "brainstorm" (p. by3 505,506) that the facilitator had been using. However, with the experience of the first session, Brian had learned to "appreciate the person, the way they do things and of course [that] made this [the second] session much easier because you knew what he [the facilitator] was talking about" (p. by3 485). Because Brian had understood the facilitator in the second session, Brian had felt "more comfortable" (p. by3 492), "more confident" (p. by3 515), and "more aware" (p. by3 515). Thus it seemed that Brian had undergone a process of "acclimatisation" with respect to the facilitator as well as the technology that was reported in the previous section. An issue raised for facilitation here is the use of language - specifically, terminology. Facilitators need to be aware that the terms they are using may not have meaning for the participants. In cases where the terms do not have shared meaning, negative consequences such as discomfort, lack of confidence and lack of understanding on the part of the participants, may occur. Facilitators also need to be aware that there is a process of acclimatisation where participants are getting used to the facilitator's style or "way of doing things".

Brian was not posed the facilitator question post session three.

In the post session one interview, Jackie described the facilitator as "very good" (p. jt2 321) and mentioned attributes such as "directed the meeting" (p. jt2 321-322), "explained things very clearly" (p. jt2 322), "speaks well" (p. jt2 324), and "has a nice voice" (p. jt2 324). Jackie noted the "unknown" of how the sessions would go. She felt that during the discussion and organisation of ideas, the facilitator kept "bringing [them] back" (p. jt2 328) to putting the ideas into strengths, weaknesses, opportunities and threats, whilst they kept forgetting.

Post session two, Jackie brought out a role that the facilitator played, that could be described as "theme extractor". Quotes of Jackie's speech that supported this aspect included:

- "He lets the conversation roll until he's got a grasp on what the concept is and then he reiterates the basic concept of the conversation" (p. jt3 175-177)
- "[he] is able to take out the important elements of what people were saying" (p. jt3 192-193)
- "it's very difficult to grasp what the general point is, and a lot of people can be saying the same thing in a different way and not even realise that they are saying the same thing" (p. jt3 207-210).

Jackie noted that the facilitator must have had "experience" (p. jt3 178) and be "familiar with the way that people converse" (p. jt3 192).

With respect to the third session, like the first session, Jackie noted the facilitator's role in explaining things. She added that the facilitator helped resolve problems via letting them "get their whole problem out" (p. jt4 250) , explaining to them, and helping them to "resolve it themselves" (p. jt4 252).

Post session four, Jackie could not recall anything to say about the facilitation and she was not posed the facilitation question in the final interview.

Ken observed with respect to the first session that the facilitation had been on the "positive side" (p. kg2 146). Like Jackie, Ken felt that the facilitator was experienced, "He's obviously done it before and done lots of it" (p. kg2 146). This perception of experience appeared to be based on the competencies and skills that

the facilitator demonstrated including "the way he stands up and can talk" (p. kg2 151), and "the way he talks to people and can extract things out of them" (p. kg2 152). The "standing up" aspect is significant in that the researcher observed that the facilitator was the only person standing whereas the group was seated. This tended to make the facilitator "stand out" at the session. The facilitator was obviously recognised as prominent verbally, as both Jackie and Ken commented on his verbal skills. The "extract" aspect of Ken's speech is similar to Brian's "helping people express themselves" and the "theme extractor" role described by Jackie. The facilitator seems to be playing a central communication role that involves helping the group of individuals understand themselves and each other. The role may be something akin to a mediator making sure the message is "right". Ken felt that the experience of the facilitator helped make things "flow along better" (p. kg2 157).

Post session two, Ken repeated his statements about the facilitator's experience and skill with regard to "standing up and talking". He also added that the facilitator "knows how to use words" (p. kg3 139). Ken ascribed some knowledge of the goals to the facilitator - "he knows what the whole thing's aiming at" (p. kg3 147-148). Thus Ken seemed to have a certain amount of faith or confidence in where the facilitator was taking them.

With regard to the third session, which had been characterised by confusion, Ken seemed to retain his faith in the facilitator and regard that they, the group, "had got a little bit lost along the track" (p. kg4 593-594). A role as "guide" came out of the following speech; "[the facilitator has] in mind somewhere we're going to get and he'll keep us going along that until we get there" (p. kg4 596-598).

Post session four, Ken repeated themes of the facilitator's competence and noted some separation between the group's performance and the facilitator's performance. He said "[the facilitator] will continue to do [his job] regardless of how we perform" (p. kg5 724-725). Ken indicated that the group rather than the facilitator were providing the ideas. The facilitator was "extracting it all out of the group and helping the group to put in under different headings" (p. kg5 735-736). These aspects seem to reflect the objective of many GSS facilitators to facilitate the "process" rather than the "content" of group meetings. The facilitator's role is to be expert in supporting group process and the task process, say strategic planning in this case, whereas the group are regarded as expert in the knowledge of their organisation, work activities and aspirations. Ken noted this distinction by describing the situation where the

facilitator starting putting in content as "disastrous" (p. kg5 743) unless the facilitator was expert in their, the Department's, business which he felt no one person could be.

In the final interview, Ken described the facilitation as "[it] was good like before, it was all well done and there was no traumas with it" (p. kg6 645-646).

Post session one, Liam felt the facilitation was "very good" (p. lf2 152). Liam described an activity of the facilitator similar to that of Brian's "supporting expression" and Jackie's "theme extractor" mentioned above. "Where he could see that we were sort of stumbling to come up with how we wanted a particular item written out, he was able to summarise it for us" (p. 154-157). Elaborating on this, Liam felt the facilitator had been "very concise and in the few words that he used [it] was exactly the way we wanted it" (p. 159-160). Liam noted that the facilitator constantly "reminded us of the time factor" (p. lf2 153). This was likely a reference to the facilitator's activity during the discussion and organisation of ideas, when he had set a two minute time limit via the GSS software on the discussion of each of the ideas, and reminded the group each time this had expired.

Liam observed after the second session that the facilitator had been "better...than...the first time" (p. lf3 207-208). However, Liam thought that this was associated with himself having a better "idea of the format" (p. lf3 214-215) after not having a "clue" (p. lf3 213) in the first session. This had made him feel "comfortable" (p. lf3 221) and "relaxed" (p. lf3 219) rather than "tense" (p. lf3 237), which meant that he could get on with the task. The familiarity with the facilitator was expressed by Liam as "we've been with him before" (p. lf3 245-246). This perception had been mentioned by Brian in reference to being "used to the facilitator's style" and "knowing what he was talking about". Liam noted that the facilitator had the ability to engender different ways of thinking in the participants.

Post session three (the session characterised by confusion), Liam somewhat reluctantly, blamed the facilitator for some of their problems. This was in contrast to Ken who felt the problems lay with the group. Liam expressed his belief that the facilitator was partly to blame. "If, for example, he's done many of these sessions, I assume that he has, and he can see that we were floundering I was a little surprised he couldn't either get us motivated or get us back on track or steer us in the right direction" (p. lf4 429-433). Liam was unaware of anything the facilitator had done to

improve matters and felt that the second half of the session was just like the first half. Liam wondered whether the facilitator could have "stopped the whole process and then started with an entirely different tactic" (p. lf4 562-564). In hindsight, Liam also felt that the change of format to allow Stan to present his two strategies publicly had been a mistake as they had got stuck on the "two points" (p. lf4 424).

The role of the facilitator in "guiding" the group came out in the conversation; "we were looking for guidance like we had in the first two sessions" (p. lf4 574-575). Liam felt the facilitator "may not have been able to interpret the problem we were having" (p. lf4 586-587). Liam's perception of the facilitator failing the group was not expressed by the other participants to the same degree.

Liam described the facilitation, post session four, as "clear" (lf5 2127). He mentioned several activities that the facilitator undertook including, "guidelines to interpret some of the bar graphs" (p. lf5 2132-2133), "questions [you]" (p. lf5 2133), and "stimulate[s] you" (p. lf5 2133-2134). Additionally, he noted a "controlling" (p. lf5 2144) activity, in terms of keeping "control on the group" (p. lf5 2142), with respect to things like "jesting" (p. lf5 2144).⁴ Liam distinguished the facilitator's role from that of the chauffeur, noting that the facilitator had "got to be verbal" (p. lf5 2209) and "a little bit aggressive" (p. lf5 2210) in order to get information out of the group and "keep us in line" (p. lf5 2211).

Liam was not asked the facilitation question in the final interview.

Overall, Liam, like the other participants, presented a rich description in terms of varied activities that the facilitator undertook. These included, guiding, controlling, interpreting, and explaining.

Post session one, Peter, like Ken, described the theme of the facilitator helping with "process" whereas the group were coming up with the "content". Peter described this as "he's not putting words into people's mouths" (p. pm2 153-154), and "he's just helping it along, feeding it along" (p. pm2 156). Peter noted that groups were prone to accepting what a chairperson had to say, providing the chairperson was experienced and sounded convincing, thus the facilitator could have put in a lot of

⁴ This raises the issue of the balance between *control* and *humour*, two factors emerged by Whiteley and Lewis (1992) in their grounded theory study of facilitator behaviours. Whereas humour can be used by either facilitators, participants or both to promote a relaxed atmosphere, excessive use can distract participants from the task. This was the aspect Liam was referring to.

content and finished the meeting rather quickly. It seemed that Peter appreciated the facilitator acting to help the process rather than contributing to the content from an "ownership" perspective expressed in the speech; "we're the ones that are going to inherit whatever comes out of it" (p. pm2 158-159).⁵ Peter used the terms "guide" (p. pm2 160, 166) and "leader" (p. pm2 160) to describe the facilitator noting that the facilitator kept the meeting "flowing" (p. pm2 166), and "focussed on issues" and "[kept] everybody on track" (p. pm2 167).⁶

Peter was not posed the facilitation question in his next two interviews.

Following the last session, Peter appeared to misinterpret the intention of the question and instead referred to more general aspects of the session.

Post session one, Stan described the facilitator's performance as "really good" (p. sb2 151). Stan noted that everyone "related well to him" (p. sb2 152, 156). This had been an important aspect for Stan. This was an aspect that Stan had predicted in his first interview and part of his rationale for approaching the facilitator in the first place - the expectation that the facilitator could inspire confidence in others. Stan noted that the facilitator had kept the session "well on path" (p. sb2 152) and had not got "thrown" (p. sb2 153) by one of the participants who tended to make things "difficult" (p. sb2 154).⁷ Stan noted that the participants had found it "amazing that [the facilitator] know[s] exactly what we're trying to say"⁸ (p. sb2 160) and this had been "reassuring" (p. sb2 163).

With respect to the second session, Stan felt the facilitation had again been "excellent" (p. sb3 259) and similar to the first session.

Post session three, Stan, unlike Liam, did not describe any failings on the part of the facilitator. In contrast, he described, in a positive sense, the facilitator's handling of an incident during the session when Ken stood up, went to the front of the room,

⁵ Clawson and Bostrom (1993) described the relevant GSS facilitator behaviour as "The facilitator helps [the] group take responsibility for and ownership of meeting outcomes and results; [the facilitator] stays out of their [the group's] content..." (p. 5).

⁶ The facilitator "keeps [the] group focused on and moving toward its outcome" (Clawson & Bostrom, 1993, p.5).

⁷ Ken was observed by the researcher to be very vocal, loud and often "wisecracking" during sessions. Whilst at times disruptive he also participated constructively in discussions and was respected by his colleagues.

⁸ The facilitator "really listens to what the group is saying and makes an effort to make sense out of it" (Clawson & Bostrom, 1993, p.5).

took the whiteboard marker from the facilitator and started writing on the board and talking to the group. Stan felt that this was a difficult situation for a facilitator to deal with and noted that the facilitator had not become "defensive" (p. sb4 285) and rather acted to "reassure" (p. sb4 288) Ken without being "condescending" (p. sb4 291). Furthermore, the facilitator tried to rebuild Ken's "confidence" (p. sb4 292), by using part of Ken's vocabulary. Thus, Stan felt the facilitator had handled things well.

With regard to the fourth session, Stan felt the facilitator had been more "careful" (p. sb5 881) than in the previous session. Stan did not explain what he meant by "careful" (p. sb5 881) but it was related to the fact that they had experienced a "sticky patch" (p. sb5 880-881) in the previous session. Stan, like Liam, compared the roles of facilitator and chauffeur, noting that the facilitator was "driving the ship" (p. sb5 908), "leading the exercise" (p. sb5 909), "standing" (p. sb5 918), "moving" (p. sb5 919), "directing information or comment" (p. sb5 920), "talking" (p. sb5 921), and "picking up on things we're saying" (p. sb5 921-922). Stan also referred to the fact that the facilitator was a male, although he was unsure if the facilitator had been a female, whether they would have been "dominant in the role" (p. sb5 934).

In the final interview, Stan again felt the facilitator had undertaken the session "really well" (p. sb6 679). However, Stan had felt "cheated" (p. sb6 680) because the session had been "rushed" (p. sb6 680) and they weren't able to undertake everything that Stan had wanted to fit into the session. Stan felt that the rushed aspect had "detracted" (p. sb6 683) from the facilitation. Stan judged the rushed aspect via an impression that they had jumped to new positions in the course of the session. Additionally, the facilitator had commented that they had been allowed a certain amount of time and "we hadn't met that" (p. sb6 700). Stan understood that the facilitator had in fact modified the session from looking at an action plan involving "who, when and what" , to just looking at the "what", in order to try and give Stan "a list of things to work with" (p. sb6 714). At the end of the session, Stan had found it "even more frustrating" (p. sb6 719), as despite the modifications to the session, he still didn't feel that he'd got the outcome he wanted.

Over the course of the five sessions, Stan appeared to have found the facilitation very good, even during the difficult third session they experienced, and despite feeling rushed and then frustrated in the last session through desired outcomes not

being met. In the course of the interviews, Stan had noted the leadership and guiding roles of the facilitator.

Post session one, Terry observed that the facilitator had been "assessing the information that...we were coming up with and getting it down to simpler statements" (p. te2 282-283). Thus the facilitation role had involved "assessment" and "simplification". Similar to other participants' theme of "expression", Terry felt the facilitator had produced simple statements that reflected "really what we meant" (p. te2 288) and what "we were all happy with" (p. te2 288). There is a sense here of a "common denominator" amongst the participants - "simple statements" that reflect what "we mean" and what "we are happy with". The simple statements that the facilitator used were usually a few words chosen to reflect themes that emerged during group discussion of each of the brainstorm items. These themes will often be the more abstract or general concept being discussed as opposed to the detail of the discussion. The emphasis is on capturing themes - discussion is generally brief (kept to two or three minutes) and disagreements are either captured as several themes or dealt with during the evaluation phase. A norm that is employed is that if any one person wishes to have a statement reflected in the outline document then it remains. Given this context, a common sense of meaning, and comfort with that meaning is more likely to arise. A common sense of meaning is obtainable because the detail has not been captured, rather the more abstract and generic. Comfort with the meaning is obtainable because of the abstraction and also the postponement of disagreements. The public view of the written statements, and the ability to make instant changes may also improve the possibility of capturing meaning, and improving comfort, through providing immediate feedback.

Terry described the facilitator as "directing the meaning of the conversation" (p. te2 292-293), rather than allowing it to go off on "tangents" (p. te2 294), which Terry thought would have been easy, given the number of people present. In fact, the format of the discuss and organise process is designed to aid the facilitator to keep the group focussed. Each brainstorm item is examined one at a time, viewed on the public screen, discussed by the group under the direction of the facilitator and themes are captured on an outline via the facilitator and chauffeur working in concert. When one item has been processed then the next is considered. A time limit of say two or three minutes can be imposed for each item. This system then diminishes the potential for the group to go off on tangents.

Terry noted that he had found the introduction "confusing" (p. te2 297) as there had been a lot of "information" (p. te2 308) and he had not been sure how the session would unfold. In particular, he had been unsure where "everyone fits in" (p. te2 328). Terry had not previously met the facilitation team, and had expected that the researcher, who he had met, would be "out front" (p. te2 331) whereas the "other two [the facilitation team], I don't know what I thought the other two were going to be doing" (p. te2 331-333). Terry's confusion seemed to be mainly related to his lack of experience of the session environment, including the people and their roles, the process, and the computers. Possibly, the facilitator could have informed the participants that they may well experience some confusion and anxiety, and while doing so, reassure them that this would shortly disappear with their experience, and they could ask for help or explanation at any stage. The aim of a facilitator would be to gain the trust of the participants so that they are confident they can deal with the new experiences they are about to undertake.⁹

In the third interview, post session two, Terry described the facilitator's role as "the most important role" (p. te3 163) at the session. Terry stressed the facilitator's role of "directing" (p. te3 156) rather than "controlling" , and "guiding" (p. te3 151) rather than "leading", in the sense of "you should be doing this" (p. te3 152). In particular, he noted that the facilitator "draws the points out" (p. te3 166) and keeps the people and meeting "moving" (p. te3 151). Without the facilitator's role, Terry doubted they would cover as much information nor achieve much. Terry noted that the facilitator would stop them "when he can see that we're starting to get bogged down and start to chat amongst ourselves a bit too much" (p. te3 176-178). The facilitator would then capture a point, and then "move on to the next subject" (p. te3 186-187).

Terry felt the introduction by the facilitator had been better than the previous session and this was associated with being more concise, getting to work quickly and not having to go over the explanation of the whole process.

Post session three (the session characterised by confusion), Terry felt the facilitation had not "worked quite as well in the early stages" (p. te4 476-477), and had been

⁹ Clawson and Bostrom (1993) described a facilitator behaviour as "creates comfort with and promotes understanding of the technology and technology outputs" (p. 5). Whilst this addresses the computer aspect of a GSS meeting, based on this study it should be extended to include people, roles and process. It is useful to observe that facilitators rather than participants are the data source in the Clawson and Bostrom study. Both viewpoints are necessary to build a more comprehensive understanding of GSS facilitation.

"confusing" (p. te4 481). Terry associated these aspects, with the facilitator having Stan put up a couple of strategies as "examples" (p. te4 498). Terry described a catch -22, of the facilitator using these two strategies as examples, to get them thinking of other strategies, but in fact it had the reverse effect. Terry expressed not feeling comfortable with the introduction, and wondered if the facilitator could have kept it simple, and then allowed them to enter ideas *before* discussing whether they were going in the right direction. The idea of brainstorming first, had also been suggested by Stan and Liam, as alternatives to the public elicitation of Stan's two strategies. Terry was not explicit in his speech that their task for the session was the "how to's". This seemed to reflect his confusion associated with the session.

In his final interview, post session five, Terry felt the facilitation in the last session had "worked well" (p. te6 753). Terry reiterated the facilitator's role as a guide, and in keeping the session "moving". Terry again stated the importance of the facilitator, and that without the facilitator, they would be liable to "sit there and talk on one subject for three hours" (p. te6 754-755), and hence they would end up not covering anything. Terry noted that the facilitator seemed to understand the general nature of how their organisation was working, and what they considered important.

A summary of participant responses is presented in Table 6.7.

Table 6.7 Response summary for code "faci": Facilitator(first of two pages).

	Post session one	two	three	four	five
Participant Brian	absolutely marvellous/ led the way/ knows exactly what you are trying to say/ getting you to say what you think/ did a great job	defensive didn't understand words like brainstorm/ learn to appreciate the person, the way they do things which made the session much easier/ felt more comfortable because understood facilitator more/ more confident, more aware	not questioned	Brian absent on long service leave	Brian absent on long service leave
Jackie	very good/ directed meeting very well/ explained things clearly in beginning/ comes across well/ speaks well/ has nice voice/ no negatives/ brought us back to placing ideas into correct category strengths, weaknesses, objectives and threats	lets conversation roll until got a grasp on the concept and then reiterates the basic concept of the conversation/ does it well/ experienced/ familiar with way people converse/ innate ability/ captures concept concisely/ captures the general point / captures the common point	explained everything well/ resolved problems/ let people get their whole problem out, explained it to them, helped them to resolve it themselves	could not recall	not questioned
Ken	no negatives/ experienced/ stands up and can talk no problem/ extracts things out of people/ experience makes it flow better	does it well/ experienced/ stands up and talks/ knows how to use words/ helpful not hindering/ knows what the whole thing is aiming at, that's what he's working towards	professional / good at job/ he's got a path we're going down and he'll keep us going along that until we get there	knows job/ does it well/ professional/ performs regardless of how we perform/ coordinates/ puts it all together/ helps with process not content	good/all well done/no traumas
Liam	very good/ conducted well/ reminded us of time factor/ did a very good summary/ summarised for us when wanted an item written out/ concise/ few words that he used was exactly the way we wanted	better than first time/ no clue the first time/ second time understood format and how it would run/ relaxed more and felt comfortable/ facilitator stimulates thinking/ been with the facilitator before	couldn't see where he was trying to steer us/ facilitator responsible/ changed format/ stay with successful format/ brainstorm provides diversity of ideas so don't get stuck/ surprised he couldn't get us back on track/ looking to facilitator for guidance/ couldn't get us back on track/ couldn't interpret problem we were having	clear/ guidelines to interpret graphs/ questions/ stimulates/ prods/ keeps control of group such as jesting/ got to be verbal and little aggressive to get info out and keep us in line	not questioned

Table 6.7 Response summary for code "faci": Facilitator (second of two pages).

Participant	Post session	one	two	three	four	five
Peter	Peter absent on paternity leave		good guidance/ helps process without putting in content/ good leader/ good guide/ keeps meeting flowing/ focuses on certain issues/ keeps everybody on track/ recaps/ excellent/ pleased with way facilitator led us through process/ similar to first session	not questioned	not questioned	excellent all round/ comfortable setting/ could interact readily and easily/ structured but flexible process
Stan	good/ really good job/ everyone related well to him/ kept it well on path/ didn't get thrown by people being difficult/ knows exactly what we were trying to say/ skilled/ reassuring to people that he knew what they were talking about		facilitator most important role/ keeps things moving/ guides you through it/ words things in a manner that simplifies it/ directs proceedings/ need facilitator otherwise wouldn't cover anywhere near as much information/ draws the points out/ schedules discussion	good/ dealt with behaviour of participant/ well/ not defensive/ reassured participant/ used participant's language/ tried to rebuild participant's confidence/ not condescending/ positive	good/ more careful knowing we'd been through a sticky patch/ needed to get back on track/ driving the ship/ leading the exercise/ standing up physically/ moving/ talking specifically to us/ picking up on things we're saying	did it really well/ rushed, distracted from facilitation/ jumped to new positions/ gave impression that not meeting time schedule/ modified session to try and give me what I wanted/ frustrated as still didn't feel I'd got it
Terry	extremely good job of assessing information and simplifying/ simple statements saying what we really meant/ directing the meaning of the conversation/ first 10 or 15 minutes a bit intimidating and confusing/ unsure of roles		has a hard job to direct people when they go in with preconceived ideas/ facilitation did not work well in the early stages/ facilitation better as time went on when fed in ideas ourselves/ facilitation confusing in early stage/ difficulty in subject/ examples bogged us down/ not clear from introduction/ use a brainstorm process instead	not questioned	not questioned	worked pretty well/ facilitator picked up gist of our organisation/ sieved out the wheat from the chaff/ guided us/ kept session moving/ session three bogged down/ extremely important position/ move along otherwise you're not going to cover anything

6.4.8.1. Discussion of "Facilitator"

In summary, all the participants viewed the facilitation in a very positive manner, throughout the five sessions, with the exception of the third session. The facilitator was viewed as being professional, skilled at his job, and experienced.

A temporal effect was evident over the first and the second sessions. Post session two, Brian noted getting used to the facilitator, particularly the language he used, and thus feeling more comfortable, and finding the session easier. Additionally, Liam noted that they had been with the facilitator before, understood the format, and how it would run, and thus Liam was more relaxed, and comfortable. Post session one, Terry noted that initially in the session he had been unsure of the respective roles of the researcher, the facilitator, and the chauffeur. In particular, he was unsure how "everyone fits in". Tyson (1989) describes role differentiation: "the development of a constellation of different roles in the group as it attends to task and maintenance, that is, the development of its role structure." (p.28) The role structure for Terry was initially unclear as the GSS session environment was unfamiliar. This could be contrasted with the familiar environment of the group's monthly meetings, where there were familiar established roles, such as chairperson and minute taker. The roles of participant, chauffeur and facilitator (and who would be playing them) were not familiar to the participants, and would be established over time.

Session three was the one session where the facilitator received some criticism. Liam felt the facilitator had "failed" them. He was surprised that the facilitator had been unable to interpret their problems and get them "back on track". Terry noted that the facilitation had not worked well in the early stages and had been confusing. Liam suggested that they should have stayed with the successful format of the brainstorm process which allowed a diversity of ideas and prevented them from getting stuck. Terry also suggested that the brainstorm process would have been more appropriate, however, he viewed the facilitator as having fallen into a difficult problem by using two "examples" that had unfortunately got them stuck.

Aside from the temporal effect, and the problems of the third session, the participants described many attributes of the facilitator. The metaphor of a "guide" was consistently described. This was often used in combination with terms like "on track", "off track", and "keeping us on the right path". This metaphor correlates with

Clawson and Bostrom's (1993) description of GSS facilitator behaviours as "uses the agenda to *guide* the group"[italics added], "directs and manages the meeting", and "keeps [the] group focused on outcome/task" (p. 5).

Both Ken and Peter described the facilitator as contributing to the process whereas the group provided the content. Ken noted that the effect of a facilitator contributing to the content would be "disastrous" as no one person could know everything about a business. Clawson and Bostrom (1993) describe the facilitator behaviours as "The facilitator helps [the] group take responsibility for and ownership of meeting outcomes and results" and "stays out of their content" (p. 5). Interestingly, there was an earlier occasion when a participant noticed the absence of this behaviour. Jackie observed that the facilitation team rather than the group had initially formulated the "desired future statement" in session two. She noted that if the group had formulated the statement, they "may have been a bit more comfortable with [it] at first" (p. j13 91-92).

The facilitator was seen as playing a role in the group communication, helping the group to say what they meant, and capturing this as a simple statement. Participants expressed this aspect in several ways including "extracting information", "directing meaning of the conversation", "picking up on what we were saying" and "grasping the general point". Participants noted the facilitator's skills in verbal communication when talking, listening and capturing meaning. Several participants noted the ability of the facilitator to understand what they were saying and what their organisation was about. Clawson and Bostrom (1993) describe the GSS facilitator behaviour as:

Listens to, clarifies, and integrates information - The facilitator really listens to what the group is saying and makes an effort to make sense out of it; clarifies goals, agenda, terms, and definitions with [the] group. (p. 5)

In some cases, participants made it clear that there were terms the facilitator used that were not familiar to the group - brainstorm was one such example.

The facilitator helped the group to "stay on track" and keep the session "moving" and "flowing". These aspects were related to timing including limiting the amount of discussion on a topic and moving on to the next, and also postponing discussion of some aspects to appropriate stages of the process. Time management is a key facilitator responsibility and is reported by Clawson, Bostrom and Anson (1993) as

behaviours within the role dimensions of planning and designing the meeting process and directing and managing the meeting.

The facilitator was noted for being able to maintain control of the group, not get "thrown" by difficult participants, and handle difficult situations - such as Ken's behaviour during the confusion of the third session. Maintaining control of the group is alluded to in Clawson et al. (1993) behaviour descriptions "keeps the group focused on and moving toward its outcome" and "enforces roles and ground rules" (p. 554). Dealing with difficult participants and difficult situations is not explicitly mentioned in Clawson et al. (1993) GSS facilitator behaviours, but is possibly implicit in the descriptions - "manages conflict and negative emotions constructively", "thinks on feet", and "handles dominant people to ensure equal participation" (p. 554).

Overall, the facilitator appeared to play an important role as judged by:

- the client sponsor's original decision to undertake the GSS activity
- the depth of response from the participants
- explicit recognition of importance by participants
- observation at the sessions.

This study thus lends further weight to the importance of the facilitator identified by experienced GSS practitioners (McGoff & Ambrose, 1991) and GSS researchers (Clawson, Bostrom & Anson, 1993).

6.4.9. Group and group interaction

The participants were asked what they felt about the group and the group interactions.

Post session one, Brian felt the group interaction had been "fine" (p. by2 662) and everyone had felt "positive and good" (p. by2 664). Brian noted that one of the participants spoke too much (referring to Ken) but "that's just how he is" (p. by2 666). Brian felt that was all right, so long as "you get your word in occasionally" (p. 666-667). The acceptance of differing verbal participation is likely part of the accepted social structure within this group. GSS is often described as making participation more even, however, this is likely contingent on the balance of verbal and electronic communication opportunities¹⁰, the verbal and electronic skills of the participants, and the accepted social order of verbal communication within the group.

With regard to the second session, Brian felt there was more "openness" (p. by3 899) from everybody and more people participated than in the first session. Brian referred to verbal participation only. This raises interesting issues about what is the nature of participation at GSS sessions. It seems clear that in the mixed electronic/verbal mode of this study, participants judge involvement of the group on verbal participation. Within these sessions, written participation is only visible during entering of ideas during brainstorm and in evaluation. This was a relatively small proportion of the session time and was always followed by a verbal discussion. Additionally, judging other participants' written participation, would be contingent on hearing the clatter of keys and verbal references to the number of ideas they had entered.

¹⁰ The GSS sessions using MeetingWorks favour verbal rather than electronic communication during the discussion and organisation of ideas. The key aspect of this phase is gaining a common understanding. This phase is also characterised by converging ideas rather than the divergence of a brainstorm activity. In contrast, it is noted that GroupSystems V allows participants to categorise lists simultaneously thus promoting divergence of ideas. In order to maintain a common group focus, it is less desirable to use parallel processing. Additionally, in the small rather than large group situation there is relatively smaller process loss and much to be gained from allowing participants to discuss ideas verbally. MeetingWorks appears designed with these aspects in mind whereas GroupSystems V leaves the facilitator to make more decisions about the structuring of the discussion and organisation phase. Dennis (1991, p. 197) observed in a study using GroupSystems that the organisation and synthesis of ideas was a weakness that required research and development.

Brian noted that people were "getting the feel of it [the session]" (p. by3 904) which seemed to represent familiarity gained from the experience of the first session. Brian backed this up by observing that "in the first session some people possibly sat back and sort of took it all in to try and learn what it was all about" (p. by3 941-943). Again Brian noted the verbal social order where one participant always said more than others. In respect of the participation, Brian stated "there was a lot more input from everybody...it wasn't equal...but there was a lot more uniform input from everybody, involvement, comment" (p. by3 934-937). Brian suggested that the broader participation was associated with having learnt about the process from the first session.

Brian was not posed the group interaction question, post session three.

Post session one, Jackie felt the session had gone well. She noted that Stan had stood back from both his role as chairperson and his role as manager.¹¹ Jackie noted that one participant, Liam, had been quiet and she wondered whether it was because of some interpersonal conflict. Jackie felt she had been "a bit loud and rowdy" (p. jt2 747) but she had a lot of issues that she had been keen to raise in the session.

With respect to the second session, Jackie shared Brian's perception that participation had been broader than in the first session. Jackie noted "we all had input" (p. jt3 559), "it seemed to just be an equal input" (p. jt3 561-562), and "we didn't feel as though there were just one or two of us dominating the discussion" (p. jt3 560-561). Like Brian, Jackie felt that this was associated with the participants being more familiar with the process of the meeting, having had the experience of the first session. Jackie noted that lack of participation was a concern, as "there must be something wrong with them [the non-participating persons] or there is a cause for concern that you're doing something wrong to cause them not to participate" (p. jt3 587-589).

It is interesting that despite the use of GSS technology designed to reduce domination, and despite any tactics on the facilitator's part, both Jackie and Brian noted unequal participation in the sessions. The decision to participate ultimately

¹¹ Further evidence of the different roles, and differences in persons undertaking those roles at GSS sessions. The manager, Stan, had said in the pre-GSS briefing meeting that he would have to "tone down his personal involvement". Clearly his changed behaviour was observed by Jackie.

rests with the individual, likely mediated by the group structure and specific contextual factors - such as being in an unfamiliar environment.

It was interesting that although Brian did not feel participation had been equal in the second session, noting one person always spoke more than others, he observed that everyone had made some comment. Jackie also mentioned they had all had input however she did use the term "equal". It seems likely that participants can most easily discern a difference among situations where a) some people have no input, b) some people dominate, and c) everyone has some input. Jackie described the concern when some people have no input.

Post session three, Jackie felt the group interactions were "improving all the time" (p. jt4 367). She felt that people were now familiar with the process of the meetings, they were relaxed about speaking and were comfortable in their use of the computers.

Jackie was not posed the group interaction question post sessions four and five.

Post session one, Ken felt the interaction was "quite good" (p. kg2 338). Ken repeated an aspect he had mentioned in the pre-GSS interview, that was the "openness" of their group in respect of being able to speak one's mind without people getting upset. This quality had also been mentioned by Terry and hence for some of the participants was clearly a quality of their group that existed prior to the GSS sessions. Ken had felt the interaction in the session was just their "normal open discussion" (p. kg2 343-344). This continuity of group structures into GSS meetings illustrates the powerful effect of group history - signalling a need for both researchers and facilitators to consider group history. It was interesting that earlier in the same interview, Ken had noted, after some prompting, that one person had not participated, yet he did not mention that aspect in the group interaction. Possibly that person's participation was not of great concern to Ken.

With respect to the second session, Ken felt there had been more interaction and discussion than in the first session but was unsure whether everyone had participated. The latter point illustrates the difficulty of a participant recalling the details of participation given the limitations of memory, and the relatively large number of participants (seven) to recall. Additionally, if one is a dominant speaker,

like Ken was observed by others to be, then you may be busier talking than observing who is and who isn't speaking.

Ken was not posed the group interaction question post session three, however, in other parts of that interview he noted that they had "stalled" (p. kg4 400), and people were sitting with their "teeth hanging out and their brains in neutral" (p. kg4 414). This was symptomatic of the general confusion of the third session.

Post session four, Ken felt that the interaction had been better than in the third session. He described this as, "we seemed to get going again" (p. kg5 711-712).

Post session five, Ken described the group interactions as, "always good" (p. kg6 749). However, he also noted that "some of them here with previous meetings they'd never say boo because they either felt intimidated or felt they couldn't" (p. kg6 752-754). This was a recognition of the group structure and history. He went on to describe how he always felt he could speak up. Thus it seemed that Ken had a very personal view of group interaction, he felt the group was open for *him*, yet he also noted that some did not speak up. Hence when describing group interactions as good, Ken was possibly describing his own participation. Given that Ken generally dominated verbally during the sessions, he clearly felt comfortable and took advantage of the verbal opportunity. The foreign environment, the process and the facilitator did not change Ken's verbal dominance and that was likely part of the accepted social order of the group.

Post session one, Liam described the group interaction as "pretty good" (p. lf2 473). This was despite his own lack of verbal participation, as observed by the researcher, and noted by three of the other participants, and later by the facilitator. Liam noted that two viewpoints had come across to him at the session - those of the office staff and those of the supervisory staff.

With regard to session two, Liam felt things had been better, and that the group had changed from being tentative in the first session, to being assertive in the second session. Liam noted that he had felt "keyed up and tense" (p. lf3 768) in the first session, and that as time passed, "it sort of drains away" (p. lf3 770). It seems likely that for Liam, feeling tense in the first session had contributed to his lack of participation, even less than his normal quietness, as noted by Stan. The tension was likely related to being in the foreign environment. Liam noted that participation was

better than in the first session, however he, like Brian, noted that some people are always more verbal than others. This was another reference to established and unequal verbal participation in groups. Liam noted the problem of managing verbal participation and felt that the facilitator could set some ground rules to say limit the amount of joking about issues. This was clearly a reference to Ken's behaviour in his role as a humorist. Liam felt the facilitator was better placed to undertake this, given that animosity could develop between work colleagues who tried to censor each other.

Post session three, Liam felt they didn't have "much interaction at all" (p. lf4 594). Liam felt that people who had contributed in the past sessions, and had been "leaders...for the rest of us" (p. lf4 597) had been lost, and that threw the rest into "more confusion" (p. lf4 599). Liam observed "no-one seemed to be able to take the lead, give us a few tips, that type of thing" (p. lf4 613-614). Taking these comments and also Liam's recognition that the facilitator had failed to give guidance, (see "Facilitator" above), it seems clear that Liam had also failed to find leadership or guidance from his fellow participants, and this was in contrast to past sessions.

Post session four, Liam felt the verbal participation of the group was less than in any of the previous three sessions, and this was despite his perception that they hadn't "held back" (p. lf5 1941), and that they weren't as confused as the previous session. Liam was unable to provide a reason. A possible reason could have been the process undertaken in the fourth session. This process was primarily an evaluation of the strategies and hence involved the participants in a considerable amount of private input of numbers through their terminals. Thus the proportion of verbal discussion time was probably less than past sessions.

Liam was not posed the group interaction question, post session five.

With regard to the second session, Peter felt "everybody had an input" (p. pm2 588), had their "say" (p. pm2 589), and they all "knew what they were there for" (p. pm2 594). Peter noted that everybody had a terminal and the session had been organised in a professional manner. Compared to their meetings at Curlew, Peter thought the interaction was more "organised" (p. pm2 605) and "orderly" (p. pm2 605), and that "everybody had their say at the relevant times" (p. pm2 606-607). Peter noted the role of the facilitator to "keep the control of the meeting ... so that everybody has their say and everybody understands what's being said" (p. pm2 625-626). Peter

stressed "everybody having their say" without mentioning that this should necessarily be equal, for example, that each person would speak for the same amount of time. Brian also noted that there was broad participation without it being equal. Possibly what is important for group members is that firstly, everyone is seen to have an opportunity to participate, and secondly everyone does participate. It may be less critical that participation is equal, and rather more critical that *domination* by one or two, with no input from the rest is avoided. Indeed, domination of meetings by individuals is one of the frequently reported problems of meetings (Mosvick & Nelson, 1987). Clawson, Bostrom and Anson (1993) describe the required facilitator behaviour as; "handles dominant people to ensure equal participation" (p. 556). Perhaps it is sufficient to reduce domination and ensure a broader spread of participation, with the ideal (possibly unobtainable) being equal participation.

Peter was not posed the group interaction question post session three.

Post session four, Peter noted "everybody starting to get a feel for things" (p. pm4 644), and "everybody was a bit more clear on what we were doing" (p. pm4 645-646). Peter described the third session as being "disjointed" (p. pm4 658) with people "grasping for a bit of direction" (p. pm4 660-661). However, he felt that with the fourth session "everybody seemed to be on track and on target and sort of pushing in the same way" (p. pm4 661-662) and "basically all working together" (p. pm4 664). Thus there appeared to be some sort of cohesion in the groups' activity that had not been present in the third session.

Post session five, Peter reflected on all the sessions noting, "as a group, through all the sessions, we've interacted very well" (p. pm5 1008-1009). He felt that no one had tried to dominate others, and "everybody's given everybody a bit of free time to speak" (p. pm5 1010-1011).¹² Again Peter noted the facilitator's role in dealing with "smaller discussions" (p. pm5 1011-1012) and getting the session "back on track" (p. pm5 1015). Overall, Peter felt that "everybody had their say" (p. pm5 1019), and nobody "really missed out" (p. pm5 1020-1021).

¹² Interestingly, here Peter is observing the power of the group members to determine participation. Participation of an individual is clearly influenced by the other group members. It is interesting to speculate on the power of the group structures, compared to the influence of the GSS facilitator and the GSS technology. Possibly an established group has norms of participation that are only partially influenced by the GSS environment.

With regard to the first session, Stan felt that "it worked well" (p. sb2 407) and also that he expected "it'll work better the next time round" (p. sb2 407-408). He discussed two individuals, Ken and Liam. Stan noted that Ken was "always a little bit disruptive" (p. sb2 408) and thought that he may have felt "uncomfortable with the technology" (p. sb2 411-412).¹³ Stan was surprised that Liam hadn't participated more and suspected that he was "feeling uncomfortable a little bit with the process" (p. sb2 415-416). In fact, Liam was later to observe that he felt "keyed up and tense" in unfamiliar environments. Stan noted that Liam was more familiar with computers than the supervisors hence he would have thought that Liam would have felt more comfortable.

Post session two, Stan described the group interactions as "pretty good" (p. sb3 571). He noted that Liam had been "a bit more open" (p. sb3 572). This he felt was due to the fact that people had spoken to Liam between the sessions to see if he had a problem. Stan thought that "everyone seemed very comfortable with the process" (p. sb3 577). This he felt was a slight improvement on the first session and that people were "just that bit more relaxed" (p. sb3 584-585).

Stan was not posed the group interaction question post session three.

Post session four, Stan described the group interaction as "good" (p. sb5 834). He was concerned that Ken had "withdrawn from the process" (p. sb5 836), noting that "he didn't participate as fully as we would have liked him to have done" (p. sb5 841-842). Stan noted that Ken had entered his weightings very rapidly and suspected that he may not have given much thought to them. The researcher also observed this at the session. Stan's explanation was that Ken felt the process was not of much benefit to him hence he wanted to get it over with as quickly as possible.

Following the final session, Stan's response was "not sure" (p. sb6 759), and "I think it was reasonably positive" (p. sb6 759). Stan described each of the other participants in turn. As in previous interviews he had the most to say about Ken and Liam. Stan felt Ken had been "less disruptive" (p. sb6 767) but also "less participatory" (p. sb6 768), and that his attitude was to "get it over with" (p. sb6 770). Stan thought that Ken had been "positive but sceptical" (p. sb6 772). Stan thought that Liam had "participated a bit more" (p. sb6 763) as time went on, and this was to do with

¹³ Ken did have a dislike of computers and referred to the notebooks, as *anchors*, in the first session.

"comfort zones" (p. sb6 765). Stan thought "everyone felt a bit the same that...the expectations were greater" (p. sb6 778- 780), and "we [were all] hoping we would achieve more than we did" (p. sb6 782-783). This aspect, like many that participants expressed seemed to be a personal projection onto the rest of the group. Of the other participants, only Ken expressed disappointment, the rest were fairly positive.

Post session one, Terry's response was "in general people talked quite freely" (p. te2 539). This transcript was cut short at this point, through audio tape problems.

Post session two, Terry felt the group interaction had been "a little bit better" (p. te3 561) than in the first session. He felt some had been "quieter" (p. te3 562) the first time and that was because "all of us [were] just getting used to it" (p. te3 562-563). Terry noted that Peter was present this time. Terry observed that they all knew each other well and worked together well and "generally don't object to bringing things up" (p. te3 567-568).¹⁴ Terry felt that it was important that "everyone gets the opportunity to say their bit" (p. te3 572) and "no one's made to be embarrassed over what they're saying or anything" (p. te3 572-574).¹⁵ Overall in the session Terry thought that "most people spoke up pretty well" (p. te3 574) and it was "quite good" (p. te3 575).

With regard to the third session, Terry described the group interaction as "quite good" (p. te4 561). He noted that everyone was "pretty vocal in the early stages" (p. te4 562). This is an interesting contrast to Liam's comments of "not much interaction at all". However, Liam seemed to be searching for direction in the session and not receiving it. Terry on the other hand appeared to view free and open debate as a positive aspect of group interaction.

Terry's speech reflected a degree of trust that existed for Terry within the group. He observed that "people are willing to say what they think without being intimidated by anyone in the room" (p. te4 575-576). Terry had expressed in his pre-GSS interview that at the departmental meetings, "everyone does tend to talk quite openly" (p. te1 352) . Hence it appears that there was an atmosphere of trust that existed for Terry prior to, and during the GSS sessions.

¹⁴ These are indicators of an established group where there is a norm of openness.

¹⁵ Opportunity (through a personal workstation) and protection from embarrassment (through anonymity) are features of GSS. Terry was very positive about the technology probably because it supported his beliefs about the ground rules for the sessions. It is noted, however, that Terry refers to verbal input, and here it is up to the facilitator and group members to support the ground rules.

Terry also picked up on one of the ground rules of MeetingWorks meetings as practiced at Curtin.¹⁶ This rule is that during discussion and organisation of ideas, if one person wishes a point to remain on the written record, then it stays. Participants are reminded that they have the opportunity to formally evaluate ideas during the evaluation phase. Terry described this rule as "Darryl's procedure" (p. te4 578). Terry's speech concerning this rule was, "if you can't come to an agreement, you know, Darryl's procedure, I think, is good you know those points stay so they can be evaluated by the entire group as time goes on or they're there for further discussion." (p. te4 577-581).

Post session four, Terry felt the interaction had been "good" (p. te5 939), and "better than it was the previous time" (p. te5 939-940). Terry thought that people had contributed "fairly evenly to their personalities" (p. te5 945-946). This was a statement that reflected Terry's belief that "some people will always say more than others, others will think about it, contribute when they feel it's relevant" (p. te5 946-948). This recognised structure of participation was mentioned by participants Brian and Liam in earlier sessions, and alluded to by Stan in his descriptions of other participants' participation relative to their "usual" participation. Overall, Terry felt the "spread" (p. te5 948) was "quite good" (p. te5 948-949), and "everyone ...in the group contributed something quite well" (p. te5 949-950). These comments lend support to the notion that equal participation is not as critical as a broad spread of participation, where everyone at least contributes something.

Terry was not posed the group interaction question in the last session.

A summary of participant responses regarding the group interaction is presented in Table 6.8.

¹⁶ Ground rules of GSS meetings at Curtin include respect for anonymity; debate ideas not personalities; each person has a vote; and during discussion and organisation of ideas if one person wishes an idea to remain, then it stays. These ground rules are stated by the facilitator in the first session introduction, and reinforced when appropriate.

Table 6.8 Response summary for code "grou": Group and group interaction (first of two pages).

Participant	Post session				
	one	two	three	four	five
Brian	fine/ everybody felt positive and good/ Ken speaks too much	more openness from everybody/ equal amount of comment whereas first session a few sat back/ getting the feel of it/ try and learn what it was all about/ people stronger than others like Ken/ more uniform input from everybody, involvement, comment/ getting better	not questioned	Brian absent on long service leave	Brian absent on long service leave
Jackie	went well/ all issues raised/ Stan stood back from chairperson and management role/ Liam was quiet/ I was loud and rowdy as I had issues I wanted to raise	flowed a lot easier/ we were more familiar with the actual process of the meeting/ time to go away and talk about things thus feel more comfortable about input/ all had input/ equal input/ not one or two dominating/ worry when people not participating	good/ improving all the time/people more relaxed/ people more comfortable with using the computers/ they're not so worried because they're quite aware of the procedure of the meetings	not questioned	not questioned
Ken	quite good/ we've got a good group/ can be open without causing offence/normal open group discussion	quite good/ a little more discussion and interaction than first session	not questioned	better than last session/ got going again	good/ we've got a good group that will spit it out and chuck in their two bob's worth/ I've always felt I could speak out
Liam	pretty good/ two views that of office staff and that of supervisors/ need to discuss at later date	far better/ weren't reactive rather proactive/ I know what's expected/ not as keyed up, tense/ for the first time with any of these things I get very keyed up and have some people more verbal/ facilitator could manage excessive joking	what interaction?/ didn't have much at all/leaders in group didn't know where we were going/ remaining people thrown into even more confusion/ no one seemed able to take lead	not as much interaction/ weren't as verbal as in the other sessions/ don't know why	not questioned

Table 6.8 (second of two pages) Response summary for code "grou": Group and group interaction.

Participant	Post session	two	three	four	five
Peter	Peter absent on paternity leave	everybody had an input/ everybody had their say/ everybody had a terminal/ organised in professional manner/ everybody was comfortable/ everybody knew what they were there for/ more organised and orderly/ everyone had their say at the relevant times/ little cross-talking/ facilitator made sure everybody had their say at the right time	not questioned	everybody starting to really get a feel for things/ everybody clearer on what we were doing/ I'm happy with everybody's input/ more direct and to the point/ last session people disjointed, not sure where they were supposed to be going, grasping for direction/ this time everybody on track/ pushing in the same way/ all working together	through all the sessions we've interacted well/ no one tried to overpower/ everybody's given everybody a bit of free time to speak/ facilitator managed small discussions/ facilitator put it back on track/ facilitator kept things moving/ everybody had their say/ nobody has missed out
Stan	it worked well/ it'll work better next time/ Ken a bit disruptive as usual, maybe feeling uncomfortable with technology/ Liam didn't participate, obviously uncomfortable with process, however had used laptops before/ everyone else responded as expected	pretty good/ Liam more open, participated more probably because so many people spoke to him between the sessions/ everyone very comfortable with the process/ slightly more comfortable than first session/ second session more relaxed	not questioned	good/ concerned that Ken had withdrawn from the process/ didn't participate as fully as would have liked him to/ Ken entered weightings very quickly/ Ken's attitude, this is not of much benefit to me, let's get it over with	not sure/ reasonably positive/ Ken less disruptive and less participatory/ Ken positive but sceptical/ Liam has participated more but still quieter than usual so maybe to do with comfort zones/ Peter fairly quiet as usual/ Terry good/ Jackie good as usual/ everyone felt expectations were greater/ we were all hoping we would achieve more than we did
Terry	in general people talked quite freely	interacted a little better/ some quieter first time as they were just getting used to it/ interaction was good/ Peter was present/ we know each other well/ we work well together/ don't object to bringing things up/ desire open discussion/ everyone should have opportunity to say their bit/ no one should be made to be embarrassed/ most people spoke up pretty well this time	quite good/ everyone pretty vocal in early stages/ we talk freely/ people are willing to say what they think without being intimidated by anyone in the room/ Darryl's procedure is good/ if you can't come to an agreement those points stay so they can be evaluated later or further discussed	good this time/ better than previous/ session three some did their speeches others like me looked at the screen and got bogged down/ overall spread/ people contributing evenly to their personalities/ spread was good/ everyone contributed something quite well	not questioned

6.4.9.1. Discussion of "Group and group interaction"

A temporal effect consistent with "familiarisation" was evident from session one to session two. Post session two, Brian observed they had been "getting the feel of it" and "trying to learn what it was all about" in the first session. Jackie observed that they were more "familiar with the actual process of the meeting". Liam observed that he "knew what was expected" in the second session. Stan noted that people were "slightly more comfortable than the first session". Terry observed that "some were quieter the first time as they were just getting used to it".

The familiarity gained from the first session appeared to be then associated with more openness and greater participation, particularly from those people who had been observed as being quiet in the first session. Stan and Jackie both noted that Liam had been quiet in the first session.

The interaction in the third session was viewed differently by the three people who responded. Jackie felt that the interaction had improved as people were becoming "more comfortable with the computers" and were "quite aware of the procedure of the meetings". Thus her construction represented extrapolation of the "familiarisation" process. Liam on the other hand felt that they "didn't have much interaction at all", "leaders in the group didn't know where they were going", and "no one seemed able to take the lead". Terry felt the interaction had been "quite good" and everyone had been "pretty vocal in the early stages".

The different constructions by the participants are better understood in considering the broader aspects of the participants' experience of the sessions. Jackie did not experience the third session as being a problem, unlike the other participants. Liam was probably the most negative about the third session and was particularly concerned about the lack of a known, shared goal for the session. Terry also saw the third session as a problem, however, he was generally positive about people speaking up, even if there was confusion.

The fourth session seemed to represent a *recovery* in terms of the group interaction. Ken felt things "got going again" and interaction had been "better than the last session". Peter felt that people were now "all working together", rather than being "disjointed" and "unsure where they were supposed to be going". Terry observed the interaction had been "better than previous", and "people contributed evenly to their

personalities". Liam, however, felt there was "not as much interaction" and they "weren't as verbal as in the other sessions". Two possible reasons may be, firstly, Liam did not speak as much, and attributed this to the group, and secondly, the group spent more time on private evaluation, and less on public discussion, and Liam observed the result.

Several participants (Liam, Peter and Terry), mentioned the facilitator in the course of their responses about group interaction. Liam's point related to the "management of excessive joking". Peter talked about the facilitator's role in "making sure everybody had their say at the right time", and his "management of small discussions" and "cross talking". Terry spoke of "Darryl's procedure" in describing one of the ground rules of GSS session facilitation at Curtin University. Clearly, the facilitator was perceived as playing an important role in the group interaction.

Interestingly, Clawson, Bostrom and Anson's (1993) description of facilitator behaviours does not explicitly refer to management of humour, an aspect mentioned by Whiteley and Lewis (1992) with regard to ambience, although it could be considered as a candidate for a ground rule. Similarly, the facilitator's role in managing discussion, is not explicitly referred to, but is possibly implicit in behaviours such as "keeps group focused on outcome", "handles dominant people to ensure equal participation", and "directs and manages the meeting" (Clawson et al., 1993).

Several participants alluded to a participation structure existing in the group. Stan, when describing others' participation would relate it to their "usual" participation. Terry used the term "contributing even to their personalities". Brian noted that some people are "stronger than others" in a verbal sense.¹⁷ It seems that the foreign environment initially disrupted this participation structure, particularly for Liam, who was quiet in the first session but then participated more as time went on. Any effect of the technology on verbal participation was not apparent to the researcher and was not referred to by the participants. However, as mentioned above, the facilitator was seen by the participants as influencing the group interaction.

¹⁷ The participation structure within a group is influenced by individual abilities (personality, verbal skill), status and power, and the group history and norms (Tyson, 1989). Clearly, individuals within the study group recognise and share a view of the established individual level of participation.

The facilitator had in fact taken Stan's usual meeting role of chairperson. Jackie actually observed, post session one, that Stan had "stood back from the chairperson role". Thus one would expect that the facilitator had in fact disturbed the existing group structure to be placed at the top of the verbal participation "pecking order". The lack of response concerning this is possibly a product of the questioning. Participants were asked about the *group* interaction. In almost all cases, participants constructed the group as being them - the participants - and the facilitator as being separate to the group. The authority of the facilitator was rarely questioned (with the possible exception of the third session) and there was general acceptance of the facilitator's role.

This completes the description based on the individual participants and the chronological ordering of the sessions. In the following sections two important conceptualisations are discussed.

6.5. Further Investigation and Conceptualisation

In this section, two major themes identified in the previous analysis are further investigated and conceptualised. The two themes are the "familiarisation process" and the "confusion process". The further investigation is a search throughout the interview transcripts for data defining the nature of these processes in more detail. The conceptualisation involves the abstraction of this data and the development of models describing the nature of the themes.

The two processes are selected as having widespread support among the participant responses. This support was evident in the transcriptions and additionally from the interviewing process and observation at the sessions.

6.5.1. The familiarisation process

The major finding of the longitudinal analysis was a "familiarisation process". To facilitate a more detailed understanding, an analysis of all the post session interviews was conducted. Indicators of the phenomenon, grouped into categories, are presented in Table 6.9. Additionally, in order to obtain a sense of each individual's experience with respect to familiarisation, brief descriptions are given below.

Brian noted "I always feel in an environment I'm not used to and in a world I'm not used to, and it's akin...to...a threat" (p. by2 281-283). He observed that when he went into the session he had trouble understanding the format, however, by the end of the session this was resolved. Brian found that he was overawed by the computers but that this vanished when he realised they would be working within his limitations. He felt defensive because the facilitator had used words that he did not relate to. He noted that he was worried about the whole session prior to undertaking it and he had been a bit nervous at first. In terms of participation, he observed that some people sat back to learn what the session was about and let the others participate. Brian observed that he had been getting the feel of the session and that over time he had learnt to appreciate the facilitator. This had made him feel more comfortable. The process became more familiar to him. He became more confident with the use of the computers. Brian found the second session much easier. With regard to participation, he felt there was more openness in the second session and everyone contributed, almost equally.

Jackie observed that in the first session, "they" - likely referring to the supervisors - "weren't really quite sure why we were here, and what we were doing, and how it was going to go" (p. jt3 14-16). Referring to herself, she said "it was a bit hard to grasp the concept of how the meetings would go" (jt2 326-327). In the first session, group members were sensing each other and "got the general idea on what everybody else thought" (p. jt2 12-13). Jackie noted that the supervisors' typing skills were poor, and furthermore, their general lack of computer familiarity resulted in them spending more time thinking about the keyboard rather than entering ideas. As a consequence, the administrators, who were experienced computer users, had input more ideas than the supervisors. Jackie was concerned about the lack of (verbal) participation of Liam in the first session. In the second session, Jackie felt that everyone participated instead of one or two people dominating. The group was familiar with the process and felt more comfortable, thus the conversation flowed better.

Ken observed that "everything the first time was a little different" (p. kg3 298). In the first session, the group didn't know what was expected or where they were heading. By the second session Ken found it easier and more comfortable. He also observed more participation than in the first session. With regard to typing skills, Ken noted that he was not used to computers, and that probably did "inhibit [him] a bit" (p. kg6 699).

Table 6.9 The familiarisation process:
The foreign environment

Foreign environment

general

"I always feel in an environment I'm not used to and in a world I'm not used to, and it's akin...to...a threat" (by2 281-283) / "everything the first time was a little different" (p. kg3 298) / "[Liam's quietness was] probably just because he was in a different, perhaps in an unfamiliar environment so maybe he didn't feel quite so comfortable." (sb2 78-80) / "the first time round, obviously it was a new environment which they weren't use to, they weren't aware of what to expect so they were...much more on their guard" (sb3 51-54) / "it was [an] unknown quantity going into it as to just what was going to happen so it was a bit of a 'wait and see'" (te2 25-27)

unfamiliar people

"going into that first session I wasn't sure what [the researcher's] input was going to be I mean we'd only dealt with [the researcher]. I think I almost expected to see [the researcher] out the front and the other two, I don't know what I thought the other two [facilitator and chauffeur] were going to be doing, really." (te2 328-333)

unfamiliar task

"at first I wasn't quite sure where it was leading" (lf2 197) / "Just with that first meeting, they weren't really quite sure why we were here and what we were doing and how it was going to go" (jt3 14-16) / "the first time ... you don't know what's expected you don't know where you're going" (p. kg3 619-621) / "we didn't have a clue the first time what was happening." (lf3 212-213) / "the first time ... I really didn't have a clue what I was doing ...this time I had a better idea what I was doing" (p. te3 544-545)

unfamiliar process

"when I went in I had trouble sort of working out how this format was going to be and what it meant, but in the end I knew exactly what it was all about." (by2 599-602) / "it was a bit hard ... to actually grasp the concept of how the meetings would go" (jt2 326-327) / "The format was...new to us in the beginning" (p. lf5 1845) / "it's still a foreign process to all of us, it's good to just refresh in our minds what we're to discuss in this particular session" (sb3 306-308) / "I think the first one everyone was sort of wondering how it was going to go" (lf3 22-23)

sensing familiar people

"most people ...got the general idea of what everybody else thought" (jt2 12-13) / "The format was...new to us in the beginning so we were trying to sort out in our own minds verbally amongst ourselves what the hell was happening, and where are we going and what you'd think the second half will be" (p. lf5 1845-1849) / "[the break allowed people] to reassure each other to some extent that, yes, the process was going in the right direction" (p. sb2 325-327)

computers

"someone like myself, you're overawed" (by2 607) / "I had difficulty at first opening the laptop" (by2 611-612) / "[awe] went away completely because I realised my limitations weren't that [the facilitator] was going to [surpass them]" (by2 640-642) / "because the foreman are not familiar with computer use at all, their typing-in skills were very slow" (jt2 135-136) / "not being familiar and not comfortable with that [computers] they were spending so much time thinking about the keyboard that they probably weren't thinking of things to put " (jt2 155-157) / "For me most probably I didn't feel it, but it [lack of typing skill] most probably did inhibit me a bit because it's something I'm not used to" (p. kg6 699-700) / "at times I'd like to be able to type a bit quicker...because you can say a lot more" (lf2 250-252) / "as far as the computer side of it, I was a bit slow and would have liked maybe [to have] put a few more points in, but maybe it wasn't enough time to keep up with people that [weren't] conversant with the typing skills on computers" (pm2 11-16) / "I've got a bit of a fear for it [computers]...at first I was a little bit worried but as time went on I

was quite comfortable with it and I think like anything once you've used it a little bit, you get up to speed, you start understanding them a bit more, you lose that fear also" (pm2 552-560) / "one or two people [were] a bit unfamiliar with the keyboards" (p. sb2 355) / "I didn't know how to use the computer so my first concern was how am I going to put this information in and that slowed up my thought process on coming through with the ideas" (te2 364-367) / "the first time I went in I really didn't have a clue what I was doing" (te3 543-544)

feelings

"you were on the defensive because [the facilitator] was using a lot of words you just didn't relate to" (by3 557-559) / "it seems to be a threat...you become negative, you become defensive" (by2 306-313) / "I really worried at first [about] this whole thing" (by2 499) / "you were a bit nervous at first" (by2 683-684) / "For the first time with any of these things I get very keyed up and tense and as things go by, as time goes on, it sort of drains away" (lf3 768-770) / "I've got a bit of a fear for it [computers]...at first I was a little bit worried" (p. pm2 552) / "The first one [session], I was nervous that some people would not respond positively" (sb3 102-103) / "I'm still a little intimidated because I...I'm not particularly computer literate" (te2 67-69) / "I'm still a bit intimidated by just how to use it [the computer]...that's a bit of a worry." (te2 73-74) / "I was a bit tense when I got in as to how I was going to handle that computer." (te2 303-304)

participation

"the first session ...a lot of people sat back and let a few others say...the words" (by3 902-904) / "in the first session some people possibly sat back and sort of took it all in to try and learn what it was all about" (by3 941-943) / "apart from Liam who was a bit quiet" (jt2 11) / "[because of the superior typing skills] the administrators got more points across than the supervisors" (jt2 406-407) / "I was a bit concerned about Liam" (jt2 743-744) / "one didn't [participate] very much" (kg2 48) / "I didn't say very much" (lf2 495-496) / "Liam was the only one who I thought held back a bit...Liam's usually fairly open so quite obviously felt a bit uncomfortable in that situation" (sb2 22-23) / "some were a bit quieter the first time and I think it's all of us just getting used to it" (te3 561-563) / "Liam, myself and Jackie obviously put in a lot more ideas simply because we were much more comfortable with the keyboard." (sb2 203-205)

Experience and learning

"you're getting the feel of it [the session]" (by3 904) / "you learn to appreciate the person [facilitator]" (by3 483-486) / "they'd also had time to reflect on what had happened in the first session and therefore were a bit more prepared for the second session" (jt3 39-40)

Table 6.9 ctd. The familiarisation process: The familiar environment

Familiar environment

general

"going along to the next session will be easier in that we now know basically what to expect in the way the things are going to take place, the organising, who's doing what now, where everyone fits in" (p. te2 325-328)

familiar people

"Felt more comfortable because I understood him more" (by3 492)/ "you learn to appreciate the person [facilitator], the way they do things and of course made this session much easier because you knew what he was talking about just takes time" (by3 483-486) / "I thought [the facilitator] was better yesterday than he was the first time" (lf3 207-208)/ "like we've been with [the facilitator] before" (p. lf3 245-246) / "you knew the people...[the facilitator and chauffeur] and ... basically what role they took" (te3 51-57)

familiar task

"You knew what you were going to do" (by3 569)/ "the first time ... I really didn't have a clue what I was doing ...this time I had a better idea what I was doing" (p. te3 544-545)

familiar process

"It...moved along quite well ...because we'd got used to the format" (jt3 7-8)/ "people were more comfortable with [the discussion and organisation] therefore the conversation probably flowed a bit better" (jt3 357-358)/ "we were more familiar with ...the actual process of the meeting and what it was all about" (jt3 539-541) / "The second time round we had a bit more of an idea of the format, how it was going to run" (p. lf3 213-215)/"this time [brainstorming] was easier. I had about 7 things I wanted to get out and I got those through" (lf3 331-332) / "the processes worked much more smoothly because the other people in the group were more familiar with the...way the computing, the terminals were working and what the processes were" (sb3 141-144)/ "everyone seemed very comfortable with the process" (sb3 577)

computers

"You've got more confidence. Not only with the laptop..." (by3 582)/ "you know what you're doing. You know the system, you know what input, you know what you're putting into it, you know how it works, you know what you're doing, you can use it, you're not going to blow up the world, just relaxed. You're more relaxed with it so you're happy to use it" (by3 888-893) / "generally people were ... more happy about using the computers and they seemed to handle them a lot better" (jt3 37-39)/ "People were obviously a little bit more comfortable with using them, getting used to them" (jt4 361-363) / "You weren't singled out to perform anything...I felt more comfortable with it as time went on and I think with more exposure to it I'd feel happier also" (pm2 576-581) / "Brian ...seemed to be much more comfortable with the computer and was probably typing in a lot more ideas than he did in the first session" (p. sb3 152-155)/ "being the second session everyone was much more comfortable with it [the technology] so it worked more smoothly than it did in the first one" (sb3 562-564) / "Once I felt a bit more comfortable with [handling the computer] and then I could see I could do it, I felt more relaxed about the whole session" (te2 304-306)/"once I got used to how to fit a few things into the computer, that was a bit better." (te2 65-67)

feelings

"Felt more comfortable because I understood him more" (by3 492)/ "You're more confident. You're more aware" (by3 515)/ "made this session much easier" (by3 484-485)/ "Yes, getting much easier...you're more relaxed with it [computers]. If you're more relaxed you're happy to use it so it's great" (by3 882-884)/ "I came out of there totally happy and I thought it was enjoyable" (by2 689-690) / "everybody was just quite comfortable with being there and quite comfortable with the way things were going." (jt3 8-9) / "the second time you're always more comfortable...it's easier the second time" (p. kg3 66-67) / it [familiarity] relaxed [me] a little bit more...it makes you more comfortable with going into a session like that...[and it] stimulates you to getting on with what

you have to in that session" (lf3 219-231) / "it [the second session] was much more relaxed than the first session" (sb3 11-12)/ "having got through the first one [session] and everyone coming out with positive feelings about it, I was much more relaxed in the second one" (sb3 105-107)/ "I wasn't so defensive if you like" (sb3 111) / "[knowing the system] they [the people] probably felt more relaxed about it" (te3 44)/ "you knew basically what you were going to be doing anyhow and you didn't have to get through ... quite the same learning curve that you did on the first day in how the computer system operated, the typing in of various statements, the pointing of them" (te3 45-49) / "I felt a little bit more comfortable" (p. te3 539) / "I didn't find it particularly intimidating" (p. te3 545)

participation

"there was a lot more openness from everybody...everybody gave almost equal amount of comment" (by3 899-902)/ "it wasn't equal but there was a lot more uniform input from everybody, involvement, comment" (by3 935-937) / "we all had input and therefore we...didn't feel as though there was just one or two of us dominating the discussion" (jt3 559-561) / "possibly a little bit more of it...discussion or interaction yes a little bit more...a little more in general" (kg3 589-597) / "The participation was better [in the second session compared to the first]" (lf3 775) / "people got more information into the system as a result of [being familiar with processes and terminals]" (sb3 146-147)/ "Liam was a bit more open" (sb3 571-572) / "some people contributed more than they had in the first session" (sb3 12-14) / "I think it was a bit better spread over the participants of everyone, you know, speaking up a little bit more...I think it was a bit more even" (te3 71-76)

Liam observed that the group "didn't have a clue the first time what was happening" (p. lf3 212-213). During the break in the first session, he noted that "we were trying to sort out in our own minds verbally amongst ourselves what the hell was happening, and where are we going" (p. lf5 1845-1849). Liam noted that he had been keyed up and tense in the first session, and had not said much. However, in the second session, participation had improved. Liam observed that the group had a better idea how things would run. In particular, he found the brainstorming easier and was able to get numerous ideas through the system. Familiarity relaxed him, and he could get on with the task of the session. With regard to the computer, he would have liked to have been able to type quicker so as to get more ideas in.

Peter observed that "I've got a bit of a fear for it [computers]...at first I was a little bit worried" (p. pm2 552). However, as time went on and he realised that he would not be singled out to perform anything, he became more comfortable. He did note that he was slow in typing, and would have liked to have put more ideas in, however, "maybe [there] wasn't enough time to keep up with people that [weren't] conversant with the typing skills on computers" (p. pm2 11-16).

Stan thought that "the first time round, obviously it was a new environment..., they weren't aware of what to expect so they were ... much more on their guard" (p. sb3 51-54). Stan noted that initially the process was foreign to them. Additionally, he was nervous in the first session that some people would not respond positively. However, during the break in the first session, the group was able to reassure each other that the process was heading in the right direction. Stan observed that Liam, Jackie and himself (the computer experienced participants) put in a lot more ideas than others because of their greater keyboard familiarity. With regard to participation (verbal), he observed that Liam had held back during the first session. In the second session, Stan noted "the processes worked much more smoothly because the other people in the group were more familiar with the...way the computing, the terminals were working, and what the processes were" (p. sb3 141-144). Stan was personally more relaxed having completed the first session and having the rest of the group respond positively. Stan noted that in the second session people got more information in as a result of being familiar with the system. He observed that Liam participated more, and generally people contributed more than in the first session.

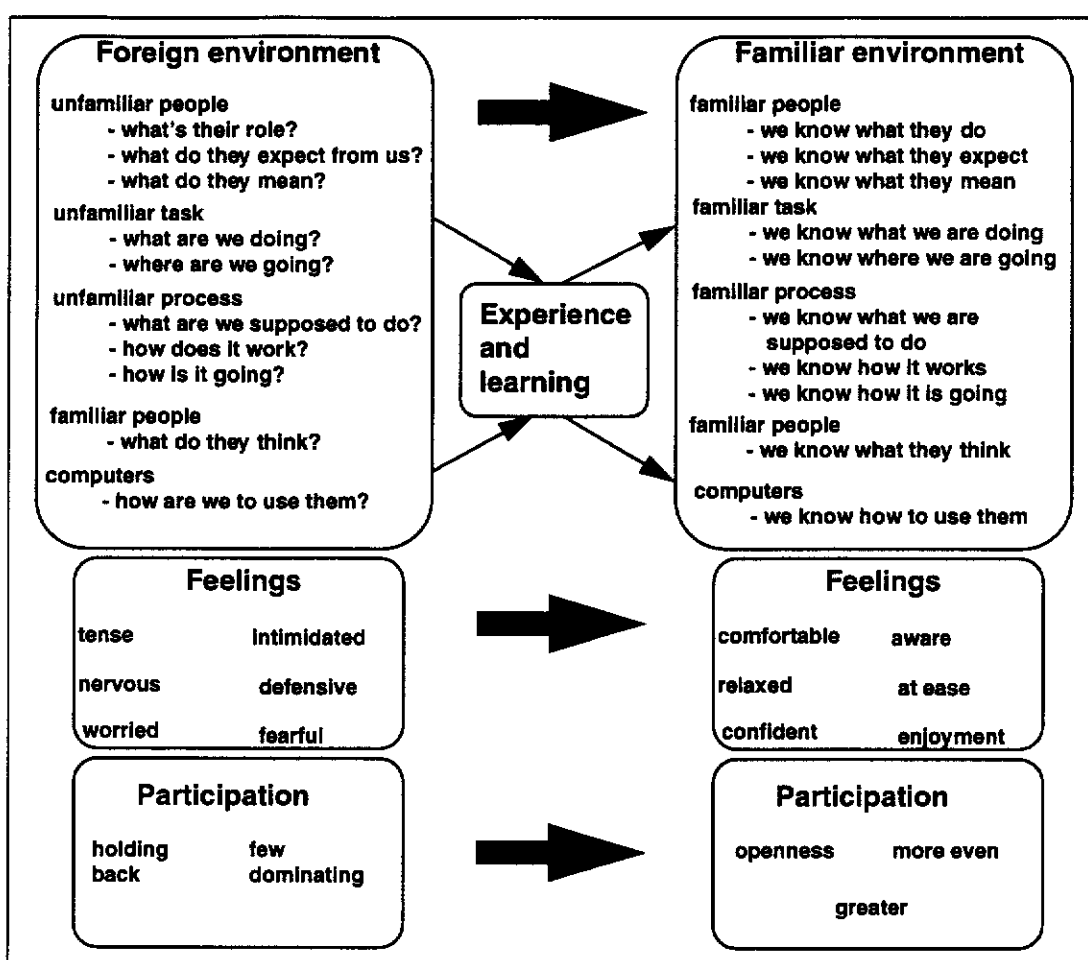
Terry described the first session as "it was an unknown quantity going into it as to just what was going to happen" (p. te2 25-27). He was unsure of the respective roles of facilitator and chauffeur. Terry didn't know how to use the computer and felt tense. These factors had slowed up his thinking during the brainstorm. He observed that several people were quiet in the first session because they were "just getting used to it" (p. te3 563). After the first session, Terry predicted that "going along to the next session will be easier in that we now know basically what to expect in the way things are going to take place, the organising, who's doing what now, [and] where everyone fits in" (p. te2 325-328). Indeed this proved to be the case as Terry knew the facilitation team and their respective roles. Additionally, he was more comfortable with his personal use of the computer system. With regard to participation, Terry observed that it was more even in the second session.

Having completed brief indications of individual experiences, the discussion henceforth is directed toward more general consideration of the process of familiarisation.

The time frame for the familiarisation process is not accurately known. However, in this study the features were most evident in the first and second sessions. After experiencing the second session, participants could recognise changes that had taken place. The familiarisation process did not end here but the strength of reporting across participants diminished. Participants also reported changes experienced in the early stages of the first session, say the first ten minutes to half an hour, particularly with respect to anxiety about the computers.

The main features of the process are summarised in Figure 6.3.

Figure 6.3 The familiarisation process



The model in Figure 6.3 represents a generalisation across individuals rather than any particular individual's experience. A computer novice, for example, would have a concern about the computers that would not be evident, to the same degree, with a computer experienced individual.

The familiarisation process can be described by changes in participants' feelings as they reconstruct the *foreign environment* to be a *familiar environment*. This takes place during experience, and learning associated with that experience. The consequences of the changed feelings include increased openness and participation.

The foreign environment includes unfamiliar people and unfamiliar roles. In this study, the strangers were the facilitation team. These people are unknown to most of the participants and their role in the sessions is unknown, particularly what they expect from the group. The explanations of the facilitator can be initially confusing

because the participants have no similar past experience to help in interpretation. Additionally, some of the language that the facilitator may use can be unknown to the participants and hence confusing. Terms like brainstorm, anonymity and chauffeur, and their meaning within the sessions can all be unknown to participants.

Whilst the facilitator can be related to the role of chairperson, with which business groups are generally familiar, there are key differences, particularly the role of an external GSS process facilitator. Over the course of the sessions, in this study, the facilitator did seem to convey to the participants the key role of aiding the process rather than contributing to the content. The neutrality of the facilitator was also observed.

The role of the technical facilitator, the chauffeur, has no traditional meeting equivalent, although writing and editing behaviours are carried out by minute secretaries. It was only over time that participants within this study learnt that the chauffeur role included an interpretive role during the discussion and organisation of ideas, in addition to the management of hardware and software throughout the sessions. Additionally, the participants became aware that the facilitator and chauffeur acted in concert, particularly during the discussion and organisation of ideas.

The participants' roles in GSS sessions also differ from that they occupy within their traditional meeting environment. The chairperson role is taken over by the facilitator and supported by the technology. Similarly the agenda preparation role. The chauffeur and the technology take over the role of scribe and recorder. These role changes constitute part of the unfamiliar environment.

The behaviours and expectations associated with each of the roles of facilitator, chauffeur and participant are initially unclear to the participants. Although the facilitator may have responsibility for defining and enforcing roles (Clawson, Bostrom & Anson, 1993), it is only over time and in the context of the specific group activity that participants define roles.

The process of the sessions, supported by the GSS technology, is unfamiliar to the participants. Participants are not familiar with the stages of brainstorm, discussion and organisation of ideas, and then evaluation of ideas. Their familiar experience is likely to be staff meetings where generation, discussion, organisation and evaluation

of ideas may take place simultaneously, or as in the case of formal numerical evaluation, not at all. Additionally, the task around which the process has been developed is unfamiliar to the participants. In this study, a SWOT analysis (strengths, weaknesses, opportunities and threats) was undertaken in the first session. Thus participants had the additional stress of dealing with the concepts of strengths, weaknesses, opportunities and threats, which was something that they had not previously experienced.

Whilst they are experiencing the foreign environment participants are interested to know what other members of the group - the "familiar people" - are experiencing. This allows individuals to negotiate an agreed version of the "social reality" that is occurring. Thus people are looking, listening and talking, in order to sense each others' views and construct their own. Participants may be concerned for their own well being and also for other members of the group. The client sponsor, in particular, has a vested interest in the experience being positive for his or her fellow members as they have led the group into the initial commitment.

The computers are of particular concern to the computer novices. Even tasks such as opening the laptop computer can be associated with fear of breaking things. The required skills and competencies in the session are unknown, thus there is anxiety associated with performance. Within this study, for example, one novice feared they may have to program the computer. Keyboard familiarity and typing skills are a concern. Low skill levels manifest themselves in a reduced ability to get ideas input within a given time. Thus if not provided with sufficient time, participants may feel they have not expressed all the ideas they would have liked to. Additionally, the mental effort associated with finding keys can frustrate clear thinking on the creative task of brainstorming.

Groups, such as in this study, that are composed of individuals with marked differences in computer familiarity and skills, may have a problem with the democratic principles of GSS. In the same way that verbal skills may be associated with differing participation and influence during verbal discussion, computer familiarity and skills may be associated with differing participation and influence, particularly during brainstorming. Within this study, computer experienced individuals raised concerns that novices had not entered as many ideas during the early brainstorm. Additionally, a computer novice complained that he needed more time to complete their ideas. Individuals who have low skills verbally and low status,

could be even further disadvantaged if they have poor computer skills. The only mitigating factor would be that having a personal workstation with the capacity to input while others are inputting (parallel processing), increases air time so that the low skill individual may at least get an opportunity to have a say, even if others say more.

Performance anxiety can quickly diminish when participants are able to satisfy themselves that they can perform adequately to task requirements or facilitator expectations. This was the experience reported by several computer novices in this study and occurred in the early stages of the first session. Being allowed to work within one's comfort zone is important.

Whilst personal use of the computers is not a concern to computer experienced participants, the performance and comfort of novices may be of concern. Group productivity can be affected directly through low skills, domination can occur and novices may feel resentful. These all represent disruptions to the equilibrium of the established group. Thus whilst a computer experienced participant may feel comfortable with his or her own situation, the interdependence associated with being in a group means the comfort and performance of each individual can affect task achievement and maintenance outcomes.

Feelings associated with the foreign environment can include fear, intimidation, worry and nervousness. These feelings can be associated with behaviour such as reduced or low participation. Several participants in this study reported that some group members held back in the first session in order to see how everything went. It is natural, that faced with a foreign environment where roles, processes and technologies are unfamiliar, persons are cautious to avoid mistakes, and situations that are embarrassing for individuals and the group. In the case of computer anxiety, participants can be focussed on the operation of the computer with reduced capacity to concentrate on the content of the task, such as brainstorming ideas. Thus the quantity and quality of ideas may be reduced.

In order to manage undesirable effects associated with familiarisation, such as uneven and reduced participation, a variety of strategies are posed in the following section.

6.5.2. Implications for GSS design and application

The implications of the phenomenon of familiarisation seem in the short term, best dealt with through design and management activities the facilitator may undertake relating to people, task, process and technology. There is rather more limited opportunity in the design of the technology, possibly only moving from keyboard entry to hand written entry. Dennis and Briggs (1993) in a study of pen-based versus keyboard entry, in a GSS environment, found that users were hostile to the pen-based interface as recognition accuracy was low and they had to think more about printing the letters than the task. Additionally, Dennis and Briggs observed that entry speed for pen-based computing was low, and that even handwritten entry was only marginally faster than the typing speed of low skill typists. Even with improved human-computer interfaces there would likely still be some anxiety and a familiarisation process involved given the novelty of using a computer in a face-to-face meeting.

There are a wide range of activities that facilitators could undertake to design for and manage the familiarisation process. These will be dealt with in regard to *people, task, process* and *computers*.

The way that the intervention in this study was carried out meant that only the client sponsor had met the facilitator prior to the sessions. To at least ease some of the familiarisation burden at the first session, a facilitator could arrange to meet with the client group prior to the sessions at the facility. Ideally this could be on the "home ground" of the client. Introductions could be carried out, and some explanation of the roles of participant, facilitator, chauffeur, and the technology undertaken. In particular differences between roles at traditional meetings and roles at GSS sessions could be highlighted. A handout, might serve to reinforce the roles and expected behaviours. The meeting could be quite brief, however, it could at least "break the ice" between facilitator and the group. Roles should then be reinforced at the first GSS session and whenever appropriate, for example, if the facilitator strayed into content, or a participant started taking over the process. Making use of a standard presentation, for example, a slide show, would ensure against facilitators' forgetting to explain thoroughly to new participants, simply through their own familiarity with the roles. Whilst Clawson, Bostrom and Anson (1993, p. 556) note that a facilitator "enforce[s] roles and ground rules" and "plans and designs the meeting process", it is

argued here that to ease participant concerns about "where everyone fits in", role definition should be undertaken as early as the pre-GSS briefing meeting.

Some facilitation approaches (Pattison, 1995; Galliers, Klass, Levy & Pattison, 1991, p. 166) employ pre-session interviews between the facilitator and individual participants, that is on a one-to-one basis. This can have benefits in terms of building rapport, empathy and trust between facilitator and participant. Additionally a pre-session interview can be used to start both participants and facilitator thinking about task content - "brief the facilitator on key issues" (Pattison, 1995, p. 95). However, if task content is to be discussed the facilitator has taken a more powerful role in the overall process and would need to be conscious of the associated expectations and perceptions of participants. Individuals are more likely to discuss more sensitive issues in a one-to-one interview, including negative emotions and perceptions (Pattison, 1995, p. 95). The treatment of information confided to the facilitator, as private or public could be a contentious issue, especially as participants are reliant on the judgment of the facilitator regarding the divulging of information rather than their own judgment, as during GSS sessions. The participant is giving control of information over to the facilitator rather than retaining control. With these considerations in mind, a facilitator may choose to use one-to-one interviews primarily to build rapport rather than discussing task content.

The problem of participants understanding what facilitators mean could be dealt with in a number of ways. Firstly, the facilitator could make participants aware that this can be an issue. They could then encourage participants to question any terms they do not understand. The facilitator may make choices between using terms that are familiar to the participants versus terms that are part of the facilitator's language. What is important is that there is some shared understanding amongst the group and facilitation team on what are the meanings of terms, and that those meanings are appropriate. Once meanings are established then consistent use of terms should encourage clarity and understanding. The dictionary metaphor could be useful where terms are tossed around the group and then defined explicitly and publicly.¹⁸

Task unfamiliarity also needs to be catered for. The strategic planning task within this study was broken down into five sub tasks, each of which was explained at each session, and was also described in a pre-GSS handout given to participants.

¹⁸ The GroupSystems V software provides a "dictionary" module (called *group dictionary*) for just such a purpose (GroupSystems V Manual Basic Tools 1990-92).

Nevertheless difficulties were experienced in the third (strategy formulation) session. These aspects are dealt with in the following sections. One radical approach might be not to burden participants with both task unfamiliarity and process/technology unfamiliarity. Planning could be undertaken in a manual environment the first year say, and then use a GSS supported process the following year. Alternatively only those participants familiar with the task could be used at a particular session. A more desirable approach may be to make the task structure as transparent as possible to participants, and provide some education and training prior to undertaking difficult tasks.

Process unfamiliarity can be managed in the following ways. Firstly, participants could be made aware that they will be undertaking processes they have not encountered before and that they may experience some discomfort. Participants should be encouraged to ask questions and raise their concerns. Demonstration of the process could be carried out. A short slide show could be used to demonstrate the inputs and outputs associated with the stages of brainstorm, discussion and organisation and evaluation, so that participants have some sense of how things are to be processed. The facilitator could indicate the activities they will be undertaking such as typing in a few words, typing in some numbers, and discussing and helping to organise ideas. An indication of the relative time on each activity would be appropriate. Participants could be made aware that they will be making repeated use of the processes and thus that they will become more familiar with them over time.

Pre-session briefings either with the group or on an individual basis could help participants to understand the philosophy behind the meeting process design. For example, if participation and ownership are being valued, the facilitator could explain how features such as anonymity and parallel processing contribute to those outcomes. If thorough analysis is being valued, the facilitator could explain how a multi-criteria decision making process might contribute to that outcome. Additionally, the way in which particular ground rules contribute to meeting outcomes could be explained.

Sensing of the *familiar people* by participants allows them to judge what is going on. A facilitator can aid this by encouraging people to ask questions and be open about how they are going. Additionally, the use of breaks allows group members to interact freely with each other, without the constraints imposed by the presence of the facilitator, the seating arrangements, and the sense of a formal meeting. These times

can be used by individuals to assess how others are finding the session and thus gauge their own sense of events.

The lack of familiarity with computers can be managed in the following ways. Firstly, the facilitator needs to identify those people who either display anxiety about computer use or are computer novices. Ideally, this information could be gathered prior to the GSS session, possibly at the briefing meeting. The participants need to be reassured that they will be able to perform adequately and that they will receive assistance when needed. The best reassurance is for participants to perform a non-critical task as a warm-up.¹⁹ Given that keyboard familiarity and typing skill are important competencies, a short brainstorm could help participants practice these aspects. Even computer experienced participants face some familiarisation through having to deal with keyboards and pointing devices that are different from their work interface and special keys that are used for entering and exiting GSS software modules. An example of a useful, but non-critical task, may be to get the participants to reiterate the ground rules of the meeting or the qualities of an effective meeting. Important keys for deleting, inserting text and sending off ideas could be pointed out. The facilitator may also need to allow adequate time for poor typists to complete their idea entry. Other tactics, such as asking people to keep ideas brief, may relieve the typing burden for novices.

The issue of differences in computer skills within the group, and thus differing ability to influence the meeting, could be addressed via the system. For example, in the idea generation module, the software could be designed to limit the number of ideas per person to a certain number and provide enough time for the slowest person to complete. Thus equal outcome, in terms of the quantity of ideas would be assured. The democratic principle would be similar to that employed in GSS voting systems where one person, one vote is the norm. Whilst facing reduced total quantity of ideas generated in a given time frame, the advantage of fairness of outcome may be more important. Additionally, a large number of generated ideas is less desirable if it means that discussion and organisation of those ideas is less thorough.²⁰

¹⁹ Dennis (1991) in a field study of 30 organisations noted, "ten leader/organizers felt that additional technical instruction on using the [GSS] and a "warm-up" or "practice" session would have improved performance, as the participants were unfamiliar with the basic concept of [GSS]"

²⁰ The MeetingWorks for Windows software now allows the facilitator to control the number of entries per person during Generate sessions.

The next section deals with the other major phenomenon, the process of confusion, that emerged from analysis of the transcripts and observation at the sessions.

6.5.3. The confusion process

A major finding was a sense of confusion associated with the third session. This phenomenon was not considered to have a strong temporal context as with the familiarisation process. However, it was felt to be an important phenomenon as it was widespread among the participants and was associated with negative perceptions. It is additionally interesting as it occurred subsequent to the participants having undergone two GSS sessions, and thus having familiarity with people, roles, process and technology. A deeper analysis of the phenomenon was felt to be useful, so that it could be better understood and hopefully better managed.

To facilitate a more detailed understanding, an analysis of all the post session three interviews was conducted and comparisons carried out across participants. The analysis is presented in Table 6.10 and leads to a conceptualisation of the confusion process in the following section.

Table 6.10 The confusion process²¹**Antecedents****Radical change in process by facilitator**

"I don't think we should have took Stan's ideas...I think we would have had a lot more input. We should not have asked, we should not have got anyone's opinion on their ideas first and then sort of worked from that because I couldn't get off that" (by 85-90)/ "It should have been a case of just go for it, put what comes out of your head and we'll sort it out in the wash" (by 97-99)/ "definitely that's one thing, a negative that we shouldn't have done" (by 107-108)/ "we should have just gone straight into the brainstorming" (by 113) / "starting off by already listing two of the strategies, I think that was a bit of a mistake for most people because we were all, just went completely blank, couldn't think of anything outside of those" (jt 42-45) / "unless we got side-tracked because [the facilitator] put up a couple of things to start with" (kg 22-23)/ "whether that threw everybody" (kg 437) / "doing it this way round...may have been the wrong way to do it because we definitely didn't get a good cross section of ideas after those two points went up" (lf 25-28)/ "I hope he [the facilitator] does a brainstorm in the [next] session, leads us into it and then let us get on to a brainstorming session first" (lf 196-197)/ "if we had have had a brainstorming session at the beginning, then we could have eliminated lots of stuff" (lf 23-25)/ "we should have stayed with that format [brainstorming]. To get a diversity of, diversified lot of ideas...is better than getting stuck like we did on two points" (lf 400-424) / "we should have gone through a listing first as a group because I think those couple of points that were put up first really stumped people" (pm 240-243) / "that was probably a big mistake" (sb 64)/ "in hindsight it was the wrong thing to have done" (sb 90-91)/ "I wasn't expecting [the facilitator] to do that" (sb 68-69)/ "Once I put them up there...people couldn't see past it" (sb 73)/ "we would have been better to have brainstormed the first session again...by putting up my two ideas, it focussed everyone too much" (sb 314-317) / "it may have been beneficial if those two ideas of SBs weren't put up right at the start on the board" (te 127-129)/ "Stan I...just have the feeling that he may have thought that it would be better off with leaving his ideas off until a bit, to allow them to come out" (te 266-268)/ "if you put the boss' ideas up first...it's a bit intimidating" (te 280-286)/ "it's pre-empting the end result to me" (te 325)/ "it still should have come up through that process of feeding that information into the computer freely. Because we've got used to that structure of doing things and anticipated that that's how it was going to be done" (te 302-306)/ "it was an entirely different start to what [the facilitator] had done on the other sessions" (te 343-345)

explanation for change in process

"well there's a yardstick, let's go off that" (by 127-128) / "I think when as he [the facilitator] started to explain it...he must have looked around and just seen the blank expressions on our faces because....I got the impression he was going to let us go for an open brainstorm but when he saw that there, that we were all thinking...then that's...when he must have asked Stan to put in too" (jt 318-325) / "just to start the process going" (pm 273)/ "just to get the thought processes going and really feeling what people's reactions were but maybe he thought the other things would come out" (pm 267-270) / "to try and get the ball rolling and get everyone thinking" (sb 89-90) / "I don't know why [the facilitator] started off that way because it was an entirely different start to what he'd done on the other sessions" (te 342-345)/ "I treated the rationalisation and subcontracting as examples the [facilitator] used to get us leading in the right direction" (te 497-499)

difficult task

"trying to think of the strategies, that was hard" (jt 109-110)/ "none of us had any management training or experience, it was a bit hard for us to think that way of thinking" (jt 114-116)/ "it's just trying to

accept a foreign, a completely foreign concept, it didn't come naturally like we really had to strain our brains" (jt 116-118)/ "using just the word strategy, I mean, that's a bit of an abstract word for many of us" (jt 122-123) / "identifying those strategies, to me, I guess is the crux of the whole thing and it's probably the most difficult part of the whole process" (sb 192-196)/ "the Desired Future is easy...but working out, linking the two things together with strategies, that's much more complex" (sb 208-211) / "it's not an easy subject to explain" (te 352-353)/ "I don't know [that I can come up with better suggestions] because of the difficulty in the subject" (te 485-486)

preconceptions

"whether it was because I had a preconceived idea of where we were going and we didn't, to me appear to be going there" (kg 10-12)/ "we've got to decide on say three different [strategies] or four...and then apply all the things we've done before to which [strategy] we think that we want to build, the way we want to build it" (kg 64-72)/ "I knew it [the session] was going to be a difficult one" (lf 114)/ "I had doubts about the session before we went into it" (lf 688)/ "most people...have got some ideas in their own minds, particularly with relation to that rationalisation issue...they feel a bit threatened...there's an urgency to get stuck into that" (sb 395-402)/ "we all had that perception that those strategies were going to be the link pin between the whole process...over the five sessions" (sb 346-349) / "all of us had our own...ideas and your own priorities and that [rationalisation] just happened to be mine" (te 119-121)/ "we've all gone in with probably preconceived ideas" (te 473)/ "I thought I knew what we were going to be talking about basically and that was this general Rational process of the whole Department" (te 109-111)

21

All responses are post session three

Table 6.10 ctd. The confusion process

Confusion

lack of goal clarity

"I still don't know what we were trying to achieve" (by 20-21)/ "I could not understand what we were trying to achieve" (by 28-29)/ "people were basically saying 'Oh are we achieving what we're supposed to be?'" (by 167-168) / "none of us, I don't think had it where we were going to go" (kg 422-424) / "I couldn't see where we were getting" (lf 6-7) / "unsure of direction and where we were heading" (pm 6)/ "uncertainty where we were going" (pm 11-12)/ "lack of understanding of where we were going" (pm 16-17)

lack of process understanding

"I totally didn't understand the format" (by 42-43) / "none of us, I don't think had it ...how we were going to go" (kg 422-424) / "lack of understanding...how that process was taking us there" (pm 16-28)/ "I'm not sure myself that I even understand really how that process you end up with the result" (sb 267-268) / "I was confused as to just...how we were looking at it" (te 41-42)/ "I'm still not to sure how that process is going to work" (te 388-389)

general

"I just couldn't understand it" (by 9)/ "What got me lost?...I don't know" (by 13-14)/ "I really couldn't comprehend it" (by 26-27) / "I got lost totally and utterly" (kg 10)/ "confused" (lf 5)/ "I didn't know where the hell we were" (lf 49)/ "I got lost. Time and time again, I got lost on that." (lf 320-321)/ "I was confused the whole way through" (lf 378-379) / "I've said a few times that, I was a bit confused in the start" (pm 399-400) / [I felt] confused (5-6)/ "there was still a lot of confusion from the previous process" (sb 122-123)/ "the confused process, or the state of confusion we'd been through" (sb 126-127) / "I think there was a bit of confusion" (te 40-41)/ "I'm still quite confused about the whole thing" (te 408-409)/ "the facilitation area was confusing early in the piece" (te 480-481)/ "I really had trouble...trying to generalise a bit more because...the other things were [not] anywhere near as important to me and so that really did confuse me did to me" (te 123-127)

repetition

"had we covered tonight what we'd covered in previous sessions" (by 236-237) / "it was the same thing all over again" (kg 26)/ "we were going in circles. It was all the same thing again" (kg 6) / "there seemed to be, in my mind, a little bit of repetition coming up (pm 7-8) / "[Ken] felt that some of the other things ...were being duplicated. And I thought along those lines a bit too" (te 166-168)

confusion of others

"oh definitely...looking at people plus over the teabreak" (by 159-163)/ "I felt better because it wasn't just me" (by 176)/ "I wonder if we're achieving anything? 'We didn't fully understand what that was said about'. And that was said by most people. (by 310-312) / "we were all lost or whatever label you'd like to pin on it" (kg 567-568) / "we're all floundering at the moment. I know I am" (lf 292)/ "we got totally sidetracked, confused and disorientated, the whole thing" (lf 28-30)/ "obviously some of the others may not be as confused as what I was because we've got 7 criteria there to work from" (lf 815-817) / "just from looking around the room...there seems to be a bit of doubt there or there were different discussions going on and different tangents... people trying to decipher where we were going" (pm 88-93)/ "everybody was a bit uncertain and that was the general consensus" (pm 38-40) / "confused, the same as everyone else did at the end" (sb 5-6)/ "confused I think particularly Brian and Ken" (sb 238-239)

confusion breeds confusion

"[Ken] just sort of disorientated us even more doing that" (lf 60)/ "[Ken's actions] just threw us into confusion even more" (lf 67-68)/ "I think [adding an idea] might have confused people even more" (lf 47)/ "the more we talked about it, the more we sort of showed that we were confused, it confused us even more" (lf 446-447)/ "some of the people...they may have been the leaders...for the rest of us...they sort of didn't know where we were going, it threw the remaining people into even more confusion" (lf 594-599) / "it was generated through a lot of discussion going on between others too and you sort of listen to one argument and then another and another and you tried to evaluate the whole thing and you got a bit lost" (pm 19-23) / " [Ken's actions] reflected on everyone else as well because it made them more confused" (sb 19-20)/ "it probably just made it worse" (sb 54-55)/ "[Ken getting up was] confusing things probably a bit more" (te 153-154)

ken's behaviour

"there was something up on the board that really struck a, a nerve with him...he was passionate about that particular subject" (by 247-249)/ [there was something] threatening him and his role of what he does at work" (by 288-289) / " he was struggling a bit with the concept" (jt 155-156)/ "it gave us a bit of a breather to listen to what he was saying and then be able to get on the right track by all of us discussing it or by all of us sort of arguing the other side" (jt 156-160)/ "I'm glad he did do it because it sort of made us come to terms with it a little bit better" (jt 160-162) / "we were going nowhere" (kg 399-400)/ "we were stalled" (kg 400)/ "going in circles" (kg 401)/ "everybody was sitting there with their teeth hanging out and their brains in neutral, so if you're going to get the thing moving again, you've got to give it a kick, so to speak, to start her all up again and get her firing." (kg 403-407)/ "well it did get the chat-chat going again, even if it was only to tell me to shut up" (kg 542-543) / "that didn't help at all" (lf 57)/ "I could see what he meant, but he couldn't see what [the facilitator] and Stan meant" (lf 58-59)/ "He just wouldn't listen" (lf 59)/ "He just sort of disorientated us even more by doing that" (lf 60)/ "That wasn't constructive at all" (lf 61)/ "it just threw us into confusion even more " (lf 67-68) / "Ken was trying to clear it up in his own mind...and maybe trying to get consensus from everybody that he was thinking along the same lines" (pm 184-195)/ "he was looking for some feedback" (pm 194-195)/ "there was a general feeling at that stage anyway of everybody, was there was this little bit of uncertainty in the room but I don't think that [Ken getting up] swayed anybody one way or another" (pm 212-215)/ "he was really just trying to sort of help out in the whole thing...to help out everybody including himself...so that we could keep on moving and we could all understand it" (pm 225-229) / "that was his way of trying to clarify it for himself and everyone else at the same time" (sb 52-54)/ "he was frustrated that he couldn't work out what we were trying to do and felt that we were going in the wrong direction" (sb 50-52)/ "it probably just made it worse" (sb 54-55)/ "he could see the same things coming up again as what we'd already talked about in the first two sessions" (sb 35-37) / "he was getting frustrated and maybe he couldn't put in words so much so he was trying to find the same process up on the board as, say, what [the facilitator] had to try and explain himself as to how we were thinking" (te 173-176)/ "we'd probably would have been better off if he'd stayed put and had [the facilitator] continued, maybe go round the table and get people's ideas as to why they thought the way they did" (te 190-193)

facilitator and facilitation

" [in the break people were saying] I hope we're doing the right thing by [the facilitator]. I hope we're achieving what he thinks we should be achieving" (by 294-296)/ "I just didn't understand [the facilitator's] explanation" (by 208-209)/ "[the facilitator] knew the majority of us didn't understand what we were trying to achieve [that's why he started with Stan's ideas] / "explained everything well...he resolved any problems fairly well" (jt 243-244)/ "let people sort of get their whole problem out, if they did have a problem and then he would explain it to them sort of resolve it themselves" (jt 250-252)/ "it was obvious they [Stan and the facilitator] had discussed it [the strategies] before" / "as [the facilitator] began to explain it, he...must have looked around...seen the blank expressions...I got the impression he was going...for an open brainstorm but when he saw that we were all thinking 'Oh God! What's he talking about?' then that's ...when he must have asked Stan to put in too" (jt 318-325)/ "I can't remember well enough if he could have explained it better so that we could have

Table 6.10 ctd. The confusion process

come up with ideas" (jt 325-327) / "it's obvious really if you sort of analyse it later...that's not what [the facilitator] was driving at, as being in the driver's seat for the group" (kg 231-233) / "[the facilitator] is obviously a professional...and can do his job and do it well" (kg 590-591) / "[the facilitator has] obviously got a path we're going down...he'll keep us going along that until we get there" (kg 592-598) / "I couldn't see where [the facilitator] was trying to steer us." (lf 409) / "if his job is to try and keep us on track and to give us ongoing direction, no, I don't think it's fair to blame him. We didn't come up with the goods" (lf 410-413) / "it would really have to fall back onto him to certain extent" (lf 414-415) / "he can see that we're floundering I was a little surprised he couldn't either get us motivated or get us back on track or steer us in the right direction" (lf 430-433) / "we were all looking for a bit more guidance from him" (lf 578-579) / "he perhaps may not have been able to interpret the problem we were having" (lf 585-587) / "when we came back [from the break]...[the facilitator] really tried to put it all together again and redirect it and I felt that worked" (pm 38-42) / "that process should have been the other maybe the other way around, that we have a group discussion and then [the facilitator] could have said...Look Stan had a couple of thoughts and these were the thoughts and what do you think about those?" (pm) / "I think [the facilitator] did well to keep it going as well as he did" (sb 143) / "I think [the facilitator] dropped some of the stuff he was probably going to do and...I think he jumped a space" (sb 148-149) / "[the facilitator] dealt with it [Ken's behaviour] very well. He didn't become defensive...he...let Ken have his say and tried to pick points...and reassure Ken ...and tried to rebuild Ken's confidence by using his...terminology" (sb 285-293) / "[the facilitator's] got a hard job trying to direct eight of us...when we've all gone in with probably preconceived ideas" (te 471-473) / "I don't think the facilitation worked quite as well in the early stages...it worked a lot better as the session got going" (te 476-478) / "the facilitation was confusing early in the piece. As to just what we were aiming for" (te 480-482) / "[the explanation] needs to be kept as simple as possible" (te 487-488)

Consequences

negative feelings

"a bit of negativity in this one" (by 173-174) / "fairly negative...negative mainly because of the lack of understanding I had" (by 205-206) / "bloody horrible" (kg 5) / "it felt like a pretty disastrous sort of session" (lf 587-588) / "at first while we were doing it I thought...Are we getting anywhere?" I felt a bit discontented or "Are we wasting our time or is it just me or is it everybody else?" (pm 65) / "I was frustrated more than anything" (sb 6-7) / "I came out of it feeling more negative than positive" (te 72-73)

lack of achievement

"I don't think I achieved anything with any input that I gave" (by 215-216) / "it was a bit of a cold start" (jt 49) / "to me last night was a negative...that's the wrong word but we were only marking time, you know, we were going around in circles" (kg 391-393) / "I thought we went backwards" (kg 5) / "we weren't achieving anything" (kg 27) / "obviously if you look, we put it in and it came up on the wall. There was only 16 things and before we'd had 40 or 50." (kg 559-561) / "productivity that we got out of it wasn't there" (lf 667) / "we didn't feel we got the results, either as a group or singularly" (lf 799-801) / "most people came away frustrated from it in that ... we didn't achieve what we had gone in there thinking we were going to achieve" sb 330-332) / "it could have had a better result" (sb 374) / "we went backwards on that [session]" (te 347-348) / "[the session] frustrated me in that I didn't get my thought processes going well enough and I didn't feel I was contributing sufficiently because of that" (te 589-591)

Resolution

"after the teabreak, I could participate more because I knew what we, roughly knew what we were doing" (by 48-50) / "towards the end it all became a bit more clear" (pm 361-362) / "after the break that we had, I found I regained a bit of ground and picked it up again" (pm 24-25) / "the break itself was probably a good thing and I felt that I could sort of think about what we were doing...and what the whole process was about" (pm 33-37) / [after the break the facilitator] really tried to put it all together again and redirect it and I felt that that worked and I was quite happy with it after that

(pm) / "that [the brainstorm] started to get people a little bit back, more onto track but it was still influenced by the fact that there was still a lot of confusion from the previous process" (sb 120-123) / "I think [the facilitator] did well to keep it going as he did" (sb 143)

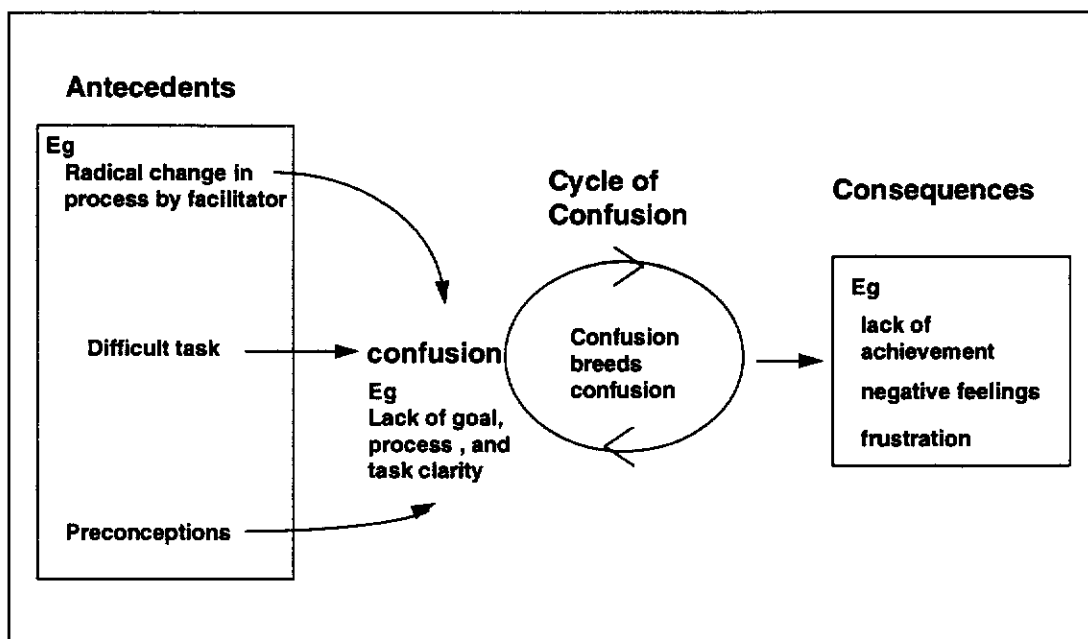
/"[things got] more back on track but people were still, even at the very end ... pretty confused...obviously Brian and Ken (sb 159-164) / "we probably got it there on track again...when we started bringing the various points out within those future strategies...because you started getting more input back in again" (te 200-209) / "we were talking in circles, we weren't going anywhere, once we managed to stop and start people individually putting their own thoughts in again...at least it got the thought processes going" (te 215-227)

6.5.4. Conceptualisation of the confusion process

The dictionary notes several definitions of confusion that closely parallel the descriptions of the participants. These include "disorder", "lack of clearness", "uncertainty as to what to think or do", "clouding of consciousness", and "disorientation". (Delbridge, 1985, p. 393, 1270)

Figure 6.4 represents a conceptualisation of the confusion process based on this study.

Figure 6.4 The confusion process



The major features are a number of antecedents of confusion, a cycle of confusion, and consequences.

Within this study, a radical change in process by the facilitator, associated with a difficult task and preconceptions contributed to a lack of goal, process and task clarity. The confusion bred more confusion and ultimately led to negative perceptions.

Task is defined as what the participants were interacting about in the session - in this case it was "determining strategies to go from the now to the desired future". The

goal represents the aim or the end. For example, in this study the facilitator was looking for four to seven written descriptions of broad directions, that were understood and owned by the group, by the end of the session. The process is defined as the series of actions directed towards achieving the goal. In this case the process envisaged by the facilitator was public elicitation followed by a brainstorm and then discussion and organisation.

The lack of goal, task and process clarity described by participants seems to have at least three antecedents from their point of view. These included the radical change in process by the facilitator, the difficulty of the task and participants' own preconceptions.

The *change in process* by the facilitator was noted by each of the seven participants. It was noted as being significantly different to what had been done in the past, hence the term "radical" has been used. The major perception of the participants was that the change in process was counterproductive. Instead of a diversity of ideas being produced, a focus developed around two points that had been publicly suggested. There was, however, an expectation of producing a greater diversity than just the two points. The participants felt "stifled", could not produce beyond the two points and thus became confused about the task, the process and the goal. The lack of productivity was associated with a perceived lack of achievement and negative feelings about the session.

The *difficulty of the task* was described by several participants. Liam noted before the session that this type of problem solving was something he was not good at, and that he knew that the session was going to be a difficult one. Jackie noted that they did not have experience in strategic planning and that the concept was abstract. Stan observed that strategy formulation was more difficult than the tasks of the previous sessions as there was the need to generate links between the current situation and the desired future. Terry also recognised the difficulty of the subject.

Preconceptions were described by Ken, Liam, Stan and Terry. Ken described himself as having preconceptions of their goal and that in the session they did not appear to be heading there. Furthermore, he seemed to have strong views about the process of the strategy formulation. Liam described himself as having doubts about the session prior to the session. Whilst Ken had a sense that the group was on a different track to himself and was not progressing, Liam was simply unsure about the whole thing. Terry's preconception was that he thought they were going to be

talking about the rationalisation issue (a specific topic) and hence he had been surprised and confused when other issues were both solicited and arose. The manager, Stan, noted that people in the group, (most likely the supervisors Brian, Ken and Terry) had ideas with respect to the rationalisation issue and that it was a matter of some threat and also urgency to deal with it. Here one can see how critical the change in process by the facilitator was, as it led to the consideration of an issue of some importance to the group, resulting in focussed views rather than diverse views.

When questioned post the GSS sessions, the facilitator indicated that the change in process was not planned, rather it represented his familiar way of working with groups in a Decision Conferencing (Phillips, 1989) environment. In this environment, as practiced at Curtin, a network GSS technology is not provided and generation of strategies takes place verbally, much like a traditional meeting, without the benefit of anonymity, and facing process losses (Dennis, 1991) due to blocking and decreased air time. The facilitator described his view of the third GSS session as:

When we got to options [strategies] that again was a bit of a difficulty and again lack of preparation made me revert back to, as I discussed with you [the researcher] previously, revert to a decision conference format, my working on the board, and that confused the participants more ... changing the form without realising it and then having to revert back. So that caused a little bit of uncertainty (p. dl 140-147)

Whilst this explains the change in process from the facilitator's viewpoint, it is clear that he too recognised that it caused a problem for the participants.

From the participant viewpoint, a key incident in the confusion experienced by the group described by Liam, Stan and Terry was the behaviour of Ken. This behaviour is included as part of a "cycle of confusion" and captures the capacity for confusion to "breed" further confusion. Liam felt that Ken's behaviour simply confused them more. Stan and Terry had similar perceptions. Additionally, Liam felt the more they talked, the more it had shown they were confused, and that confused them even more. Peter also noted listening to lots of discussion amongst others, hearing many arguments, and ending up being lost.

The immediate consequences of the confusion in the session were perceptions of a lack of productivity and a lack of achievement. In particular, Brian, Liam and Terry noted a lack of personal contribution. Ken, Liam, Stan and Terry all referred to a lack of the group achieving. Ken made a direct (unfavourable) comparison to previous sessions in terms of the number of ideas that came up. Stan referred to frustration of the group in coming away without achieving what they had expected to achieve. Negative feelings were described by Brian, Ken and Terry.

The nature of the confusion process described above provides the impetus for examining the implications for GSS design and application in the next section.

6.5.5. Implications for GSS application and design

Confusion as a phenomenon is neither well described in the group literature (sociology, psycho-sociology, education, and organisational behaviour) nor the GSS literature. Some exceptions that have varying reference to confusion, in the group literature are Kleinman (1982), Bowen, Miller, Rogers, and Wood (1979), and Stohl and Schell (1991). Yet, as experienced in this GSS study, confusion has the capacity to escalate rapidly and dominate the participant experience. Hence it deserves deeper consideration.

The confusion process of the third session can be interpreted in the light of the familiarisation process. By the third session participants were familiar with the people, roles, processes and technology. They did, however, face an unfamiliar task, that of determining strategy. Additionally, and possibly critically, they then undertook a process that whilst familiar in their traditional meeting environment, was foreign in the context of the GSS sessions. For facilitators, it illustrates how critical process design is, including the need to keep processes consistent within GSS sessions, especially when participants have become familiar with a process. A process that has identified input during idea generation, clearly contravenes the ground rule of anonymity. If a group has been used to using anonymous idea generation, then there needs to be a clear justification, made explicit to the group, to warrant the change in process.

The change in the process of facilitation involved the change from an accepted, familiar process. This process was private brainstorm followed by public discussion. Indeed, this process, which had been used several times over two preceding

sessions, was likely becoming a "norm" for the group. The change was radical, in that in contrast to private, anonymous input, ideas were publicly elicited from the "boss", in this case the manager of the department. The particular ideas, coming from the leader, were important enough and "all encompassing" such that they stifled creativity - the quality that is usually the rationale for using brainstorming.

The process of facilitation is within the control of the facilitator. There are numerous "decision points" in the course of a larger session or series of sessions. For example, in this study the facilitator had a choice of ways to facilitate the explication of strategies. In choosing identified input, from a high status, knowledgeable individual, the facilitator was also choosing important, sensitive ideas and giving special privilege. The facilitator chose an example-based approach to help stimulate further thinking. However, the examples were not "neutral" rather they came from a high status individual. In a sense the facilitator chose a rather risky approach. Whilst he knew in advance what the manager would likely suggest, based on a pre-GSS meeting, he had no idea what the response of the other participants would be, and clearly did not appreciate the sensitivity of participants to the issues raised.

A safer approach may have consisted of the following aspects. If an example is desired to stimulate (rather than stifle) thinking, then it is better not to be elicited from a high status individual. Better also that it is chosen to be more context neutral. The facilitator could have in fact avoided using an example and simply allowed the participants to undergo private brainstorm. Whilst there would be no guarantee of the "level" of thinking (abstract or more concrete) nor of the focus (concentrated or diverse) there would have been opportunity after viewing the ideas to direct the participants. It is most likely that the manager's ideas would still have appeared anyway. If the participants had shown signs of difficulty in producing ideas during the brainstorm then either the facilitator could have publicly displayed the existing list to stimulate "piggybacking", or could have suggested some examples anyway.

Hence a heuristic for a facilitator may be - if in any doubt stick to the process that participants are familiar and comfortable with. Facilitating a significant or radical change in process should only be undertaken if there are clear reasons for doing so. In the latter case both the participants and facilitator must be prepared to be surprised.

As noted previously, the facilitator observed that he had not undertaken sufficient preparation for the session where the confusion occurred. The need for this

preparation was possibly greater, given that the facilitator was already familiar with a different process design. Under pressure, the facilitator reverted to his familiar way of doing things, which, in the context of the group's experience, proved inappropriate. The issue here is that facilitators, like participants, carry with them the baggage of past experience, and like participants face surprises in a new environment, unless they clearly consider why they are advocating a particular process.

The task difficulty aspect is pertinent to strategic planning. Out of the five stage design for this study ((1) "The Now", (2) "The Future", (3) "The Strategies" , (4) "Evaluating Strategies" and (5) "The Action Plan"), the third stage is the most complex. The complexity arises out of the requirement for high level, abstract thought and the requirement that the strategies provide links between "The Now" and "The Future". None of the participants had undertaken such a task before. Additionally, half the participants were at supervisory rather than middle management level and hence were more likely to think in more specific rather than abstract terms.

Some task training would have been in order. The facilitator could have allocated some time to discuss the formulation of strategies. Additionally, the facilitator could have accepted that the ideas would come at different levels of abstraction depending on the participant's job function, that is, manager, supervisor or technical. The ideas could have been collected during the brainstorm and discussed and organised afterwards, as had been the process over the previous two sessions. The outliner of the discuss/organise module of the GSS software facilitates the consideration of different levels of ideas and hence could have been used to facilitate the placing of more or less abstract constructions of the strategies.

Participant preconceptions about the task, needed to be firstly recognised by the facilitator and then dealt with. One participant was worried about the strategy formulation task in advance of the session. Unfortunately the facilitator did not have intelligence on this aspect. This suggests the setting up of a means by which the facilitator receives feedback on concerns of participants, prior to undertaking the next session. Another participant felt they knew what they were to be doing during the strategy formulation session, however, this seemed to be at odds with what the facilitator was after. Again some task training would have been useful for both the facilitator and participants to have a clearer conception of the strategy formulation task.

6.6. Hypothesis Formulation

In keeping with the description of hypothesis formulation described in Chapter Four "negative case analysis", a hypothesis with regard to the familiarisation process is presented. It is qualified by some aspects identified in the confusion process.

A dictionary definition of a hypothesis is:

a proposition (or set of propositions) proposed as an explanation for the occurrence of some specified group of phenomena, either asserted merely as a provisional conjecture to guide investigation (a working hypothesis), or accepted as highly probable in the light of established facts (Delbridge, 1985, p. 861)

and a *proposition* is defined as a statement in which either:

- something (a predicate) is affirmed or denied of a subject, or
- membership of a class is affirmed or denied of something, or
- a relation is affirmed or denied to hold between two or more things.

(Delbridge, 1985, p. 1362)

Based on the findings of this study the researcher proposes a working hypothesis to guide further investigations:

H1: Novice GSS participants will feel more comfortable, participate more and be more productive in their second (and subsequent) GSS experiences compared to their first GSS experience.

Based on this study, effects will be larger for:

GSS novices who are also:

- computer anxious
- shy in new environments.

and where facilitators:

- provide reassurance

- allow participants to work within their comfort zone
- allow novices to practice on the technology
- brief participants thoroughly on roles, process, task and technology.

Effects of familiarisation can be negated by:

- difficult tasks
- radical changes in process by the facilitator
- preconceptions held by participants.

Naturally, further research may show that factors beyond those identified here will be associated with varying changes in comfort, participation and productivity.

6.7. Summary

In keeping with a grounded and inductive approach, the researcher has interpreted two major phenomena from analysis of the participant interviews. The first is a process of familiarisation, prominent in the first two GSS sessions, associated with participants entering a foreign environment and becoming familiar with people, roles, processes, and technology. The second is a process of confusion, associated with process changes, task difficulty, and participant preconceptions.

In the following chapter, the researcher turns from the constructions based on the study data, back to the research literature in order to place the findings in context.

Chapter 7. Literature Review Post Findings

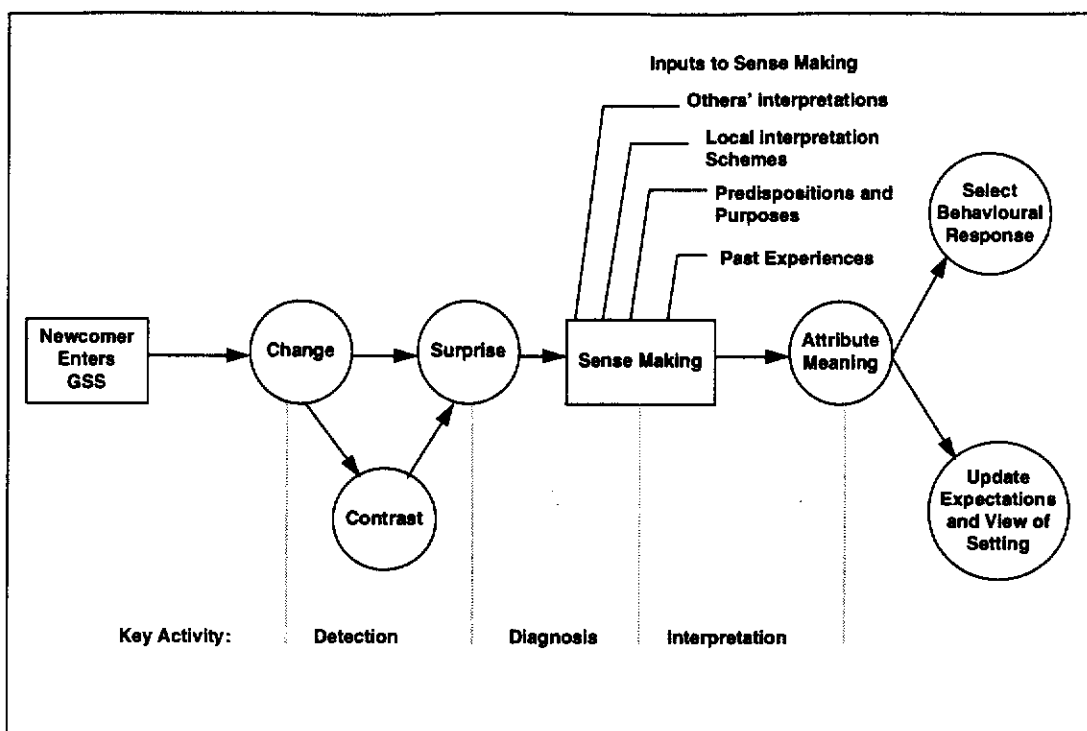
7.1. The familiarisation process

A search of the literature, concerning the process of familiarisation, revealed a paucity of literature on the topic. Louis (1980) was the only article that was directly relevant to the phenomenon observed in this study. Whilst Louis is concerned with new members in organisations, the central feature of a person having to deal with an unfamiliar environment is similar, and Louis' suggestions for managing entry are relevant to the "entry" of participants to the GSS environment.

Louis outlines a model (see Figure 7.1) where three features including *change*, *contrast*, and *surprise* are posed. *Change* refers to differences between old and new settings which are publicly knowable in advance. In the case of GSS sessions, this could refer to the differences between meetings that the participants are used to in their work environment versus the GSS environment. Some obvious differences, publicly knowable in advance, are the presence of computers, a facilitator and a chauffeur, the task, the process, and the physical environment of the GSS facility. *Contrast* refers to personally noticed differences, which are generally not knowable in advance and are contingent on an individual's past experience. For example, one participant in the GSS sessions contrasted the process of one of the sessions as "forming the agenda" in contrast to his personal experience of meetings where the agenda existed beforehand, and they then worked through it. *Surprise* represents the difference between an individual's anticipations and their actual experience of the situation. For example, one participant, having only met the researcher prior to the sessions, expected the researcher to be "standing out the front" and hence was surprised to meet two new people at the session. (Louis , 1980)

Louis posits that "sense making" takes place when people experience surprise, and then set about coping with that surprise. As a result of sense making, people attribute meaning, update their expectations and views of the setting, and make some behavioural response. (Louis, 1980)

Figure 7.1 Sense making in GSS entry (Adapted from Louis, 1980, p. 242)



Of most interest are the procedures Louis suggests for easing the "entry" of the "newcomer". These include: 1) being made aware of the nature of entry experiences, 2) discouraging secrecy, 3) encouraging links between "newcomers" and "insiders"¹, and 4) utilizing early appraisal and feedback (Louis, 1980). These four categories provide an organising framework (see Table 7.1) for the facilitation tactics suggested in Chapter Six, Section 6.3.20, "Implications for GSS design and application".

¹ Peter, who was away for the first session, seemed to have a relatively smooth entry to the GSS environment aside from his computer anxiety. This could in part be explained by the fact that Peter had six colleagues around him who had experienced the first session and found it successful. In a sense he was a "newcomer" who had strong links with "insiders", through his close working relationships. The insiders could then provide him with reassurance and feedback, and thus an easier entry into the GSS sessions.

Table 7.1 Facilitation tactics for managing the familiarisation process for participants undertaking GSS sessions for the first time. Organised according to Louis (1980).

Make participants aware of the entry experience

- roles and role differences
- task differences
- process differences
- language/terminology differences
- ground rule differences
- computers
- room differences
- improvement after the first GSS session
- other similar participants' experience of GSS

Discourage secrecy, encourage openness

- encourage revealing of problems (in group or one-to-one) pertaining to:
 - language (avoid jargon, and make use of a group dictionary)
 - computer anxiety
 - process difficulties
 - task difficulties
 - lack of goal clarity

Encourage links between newcomers and insiders

- provide references to other groups'/organisations' GSS experiences
- build rapport between facilitation team and the participants (introductions, pre-session meetings, breaks, and possibly some social meetings in the course of a multiple session intervention)
- encourage links where new participants join an existing GSS group

Utilize early and continuous appraisal and feedback

- identify and provide support for computer novices
 - identify and provide support for dealing with unfamiliar tasks
 - conduct warm-up sessions with non-critical tasks
 - allow early and frequent breaks for participants to freely interact with each other and/or the facilitation team
 - manage expectations (make goals explicit)
 - provide feedback on performance (positive feedback where goals are obtained, and support where performance below expectations)
-

The first category are tactics for making participants aware of the entry experience, and the differences they can expect between the GSS sessions and their familiar meeting environment. The second category concerns creating an atmosphere of openness where fears, anxieties, and concerns are treated as necessary and legitimate issues of debate. For example, if the participants in this study had been encouraged to question the process, then the confusion during the process change in the third session may have been dampened through explanation for the change. The third category concerns tactics for improving the experience of newcomers by encouraging links with those who are familiar with the GSS experience, including past users and the facilitation team. The fourth category concerns providing early and continuous feedback so participants are aware of what is expected of them and are encouraged and supported in their performance. For example, in the third session, participants had an expectation of performance based on two previous successful sessions. When their performance was poor, the facilitator needed to explain why this was so, principally due to their lack of experience at strategy formulation. The facilitator could then either lower expectations for the session, or provide education about strategy formulation.

7.1.1. Computer anxiety and computer skills

All the participants in this study were concerned about computer anxiety and skills, either their own, or that of others (See Table 6.9 "computers"). Familiarity with the computer was thus an important sub-category of the familiarisation process.

The GSS literature has not reported the significance of computer anxiety and computer skills. This may be due to the study participants that have been chosen, particularly in experimental studies, where the undergraduate or postgraduate students chosen are of a generation where computer literacy is high, and thus computer anxiety has not been an issue. Additionally, tasks are less critical to participants in experimental studies thus their concern and anxiety about performance, is relatively low. Student groups are also more likely to be homogeneous with regard to computer skills as they are generally drawn from the same course.

Field studies in information technology companies, such as IBM (Nunamaker et al., 1989) or in information technology departments (DeSanctis et al., 1993) are likely to

have participants who are familiar and skilled with computers. There may also be an assumption on the part of researchers, who would generally be computer literate and have high skill levels (having a background in IS), that participants are like themselves and thus do not experience computer anxiety. Therefore research designs and instruments are not directed towards observing and measuring this phenomenon. Participants may also be reluctant to reveal their lack of skills or discomfort with computer usage. Thus research procedures that place little emphasis on researcher-participant interaction, for example, questionnaires using closed questions and Likert scales, with analysis via averaging of responses, are unlikely to reveal participant concerns about technology skills.

In studies such as this one, where the group consisted of computer novices and experienced users, the recognition of differences and difficulties by group members, is more likely. Such heterogeneous groups will more likely experience differences in performance through varied keyboard and typing skills, and varying comfort levels with computer use. Concerns about differing technology skills at GSS sessions are revealed by Kanachowski (1992). The field study research involved two health sector groups using Plexsys, a forerunner of GroupSystems V, at the AIMlab.² Structured interviews with participants revealed that one group in particular was concerned about different skill levels amongst the group. Comments included:

- "If you can't type, you can't get in"
- "lack of typing ability extremely frustrating"
- "biased toward people who could use computer technology"
- "people more accomplished at typing get more information in"
- "some group members were very frustrated typing and felt handicapped; felt limited in the number of comments they could put in"
- "Aware of need to have computer skills or rather to feel comfortable around computers"

(Kanachowski, 1992, Appendix D)

Furthermore, Applegate (1986) at the time of early development and use of GSS at the University of Arizona, noted several issues related to computer skills and familiarity.

² AIMlab was a facility that existed at the Australian Institute of Management, in Perth, and provided a commercial GSS service. It no longer operates.

- The benefits of parallel processing and automatic recording of ideas must be weighed against the inefficiencies that result from reading and typing as a communication mode...(p. 473)
- The unfamiliarity of the computer as a tool for thinking and decision-making may be a deterrent to effective idea generation for some planners (p. 473).

It is also interesting that practitioners report the need to deal with the computer interface. Boston (1993) describes working with executives noting that they "hate typing". "Typing is the least best use of executives' time in a meeting. Typing is often viewed as menial" (p. 1). Furthermore, he reports a tactic for dealing with those afraid of the technology through having poor typing skills. This tactic is to have the facilitator state that the objective for participants, during a brainstorm, is to get an idea across concisely. In this case, the speed of typing is possibly less critical than the clarity of thinking. Whilst this tactic has some merit, the reality is that a skilled typist will outperform a low skill typist, all else being equal. The author thus prefers the tactic of software design allowing the same number of ideas per person. The process can then be facilitated by asking participants to filter their ideas, prior to input, to those they consider the best or most important.

Kreuger (1988) describes aspects of the experience of novice PC users encountering the computer for the first time. An adaptation of his framework, which is based around *stand-alone* PC usage, is given in Table 7.2.

Table 7.2 Aspects of the experience of novice PC users (Adapted from Kreuger, 1988)

-
- Inadequate user knowledge
 - Concerns about speed and time
 - Meanings of computer activities
 - Messages from PC are cryptic
 - Concerns about manual dexterity
 - Visual and audio stimuli
 - Linear thinking
 - Anxiety about the fragile nature of equipment
-

Kreuger describes the inadequate stock of user knowledge, manifest as "experiencing a strange and unusual object in my environment" and "Strangeness leads to nervousness." (p. 74). The computer novices in this study reported nervousness, anxiety, and fear about the computer use (see Table 6.9). One participant reacted by describing the PCs derisively as "anchors" with the call to "throw them over the side" (Appendix K, page 1.1).

Concerns about the *speed of the computers* were mainly positive - the speed with which ideas reached the public brainstorm list, or the speed of the hard copy production. Similarly, *time* was treated as a positive aspect - the short time interval for ideas or numbers to be accumulated.

The *meaning of computer activities* was referred to by a computer experienced individual as "understood" in the sense that they understood the process by which private ideas went to the central store and were projected onto the screen. With this understanding she felt comfortable about the computer activities. Although not referred to as an issue by other participants, obviously demonstration and explanation by the facilitator would improve all participants' understanding in the first GSS encounter.

Cryptic messages from the PC were not noted as an issue, possibly reflecting the user friendliness and simplicity of the participant GSS software. Additionally, support from the facilitator and chauffeur was readily available on the few occasions when problems arose.

Concerns about manual dexterity, for example, typing speed, were expressed by most participants (Table 6.9), and was clearly a concern. Low skill levels were seen as contributing to inadequate performance. Differing skill levels amongst the group were viewed as contributing to domination by skilled typists.

Visual and audio stimuli were not reported by participants as a major issue, but obviously there is some familiarisation with the screen, the cursor, and what it means when "beeps" occur. With regard to the public screen, one participant incorrectly attributed a priority meaning to a numbered outliner list of ideas. Additionally, during multi-criteria analysis in the fourth session, two strategies were mixed up, because of poor system labelling. These aspects illustrate the capacity for unfamiliar symbols or poor labelling to create confusion.

It is possible that the GSS software having a strong sequential orientation, promotes *linear thinking* rather than lateral thinking, however, there was no obvious evidence in this study.

Anxiety about the fragile nature of the equipment was noted by one participant and has been observed by the researcher at other GSS sessions. The notebook PCs used, do appear somewhat fragile, and upon opening, users are concerned that the screen lid will break. Generally, some reassuring words from the facilitator are sufficient to overcome this anxiety. Additionally, because of the portability of notebooks it is possible to move them such that network connections are strained to the point of disconnection. This wasn't an issue in the study.

Whilst Kreuger's framework is predicated around stand-alone usage, and not every aspect is manifest in a particular situation, it does remind facilitators and chauffeurs at GSS sessions that familiarisation with the technology interface can be important.

Discenza and Dukes (1988) investigated the influence of computer experience on an index of computer anxiety. They noted Maurer's (1983) findings that users with more experience were less anxious. In their own study they found that a small amount of experience could lower anxiety significantly. "Beginners can gain a little knowledge, and they can feel much relieved" (p. 58), the authors reported. This experience is similar to that reported in this GSS study, where the computer novices' anxiety quickly subsided in the first session after they became familiar with the interface and knew that they could perform within the requirements of the task. The

authors describe several techniques for improving *students'* experience, one of which is similar to Boston's (1993) tip above for helping executives with GSS:

don't place a premium on speed at the keyboard. Stress mastery, and present students [participants] with plenty of opportunity to work at the keyboard. (p. 58)

Dealing with the keyboard, and typing speed appear to be critical aspects of the novices' experience, that require immediate support in order to overcome anxiety and negative effects on participation, quickly. Based on computer anxiety research, and additionally supported by this study, a small amount of practice appears to reduce anxiety significantly.

One of the issues for external GSS facilitators is their lack of information about client group participants prior to a GSS session. To resolve this, a suggestion is to employ a small personal questionnaire prior to the GSS sessions to ascertain the participants' backgrounds and concerns. Specifically, this could include questions about computer anxiety (Table 7.3). Note that while researchers often ask questions about perceived typing skill, and frequency of computer usage, they don't necessarily ask direct questions about anxiety. It is possible that persons have low or high perceived skill levels, however, they still feel anxious about computer use, particularly in a group setting where there may be anxiety due to performance evaluation by others, or simply because performance requirements are unknown.

Table 7.3 Suggested computer anxiety questions to identify computer anxious participants prior to GSS sessions

As facilitator of your coming GSS session I wish to make the session as enjoyable and effective as possible...

Do you feel anxious about using a computer in a group meeting?

yes/ no

Which of the following are sources of your anxiety?

- the "unknown" of the use
- never touched a computer before
- dislike computers
- typing skills
- keyboard skills
- your performance compared to others in the group
- other

Would you like to have a practice activity to warm up at the session?

yes/ no

The manual for the GSS software GroupSystems, provides a few suggestions for facilitating human-computer interactions.

If the group has never used the GroupSystems V technology, briefly introduce it. ... Take a minute to introduce participants to the keyboard, particularly the function keys, the navigation keys, and <Alt>, <Space>, <Esc>, and <Enter>. ... Some participants may be inhibited by their fear of the keyboard or of misspelling words. A comment early in the session about the importance of the input's context over the correctness of spelling³ may be helpful. (GroupSystems V Basic Tools, p. slg-28)

The MeetingWorks user manual is not explicit about computer anxiety, mentioning only the ease of software use.

³ Correctness of spelling can be also be facilitated by provision of a spell-checker.

Because the MeetingWorks software is extremely simple to use, there are no technical pre-requisites to attending a meeting. Simple direction by the chauffeur allows all group members to participate fully. (MeetingWorks for Windows, p. 23).

Interestingly, in their study of key facilitator behaviours, identified from GSS facilitators, Clawson and Bostrom (1993) report a behaviour relating to the technology.

Creates comfort with and promotes understanding of the technology and technology outputs - The facilitator carefully introduces and explains technology to [the] group.; directly addresses negative comments and inconveniences cause[d] by [the] technology (p. 5).

This lends support to dealing with aspects such as computer anxiety, identified in this study. Whilst a later study, Clawson and Bostrom (1995), places this behaviour as relatively less important amongst sixteen key behaviours, it is still regarded by facilitators as important. In contexts, such as this study, where the group includes computer novices, creating comfort with the technology can become a critical issue, particularly with regard to ensuring "equal participation" which was viewed as an aspect of one of the top five behaviours in general importance (Clawson & Bostrom, 1995, p. 185).

In the next section, the literature with regards to confusion in groups is reviewed.

7.2. Confusion

Confusion was identified as characterising the third session in the study. Antecedents included participant preconceptions, task difficulty, and changes in process by the facilitator. A cycle of confusion was associated with the behaviour of an individual and consequences for the group were a lack of achievement, and negative feelings about the session. The behaviour of the individual and the associated role is described in the following section.

7.2.1. Farrago

A literature search around the topic of confusion, within the group literature, revealed a model after Stohl and Schell (1991). This model includes the description of an actor named a *farrago* because:

- (a) interactions with this type of problematic person often result in confusion as to responsibilities, group tasks, decision-making procedures, and so on, and (b) these interactions cause the group itself to become confused. (Stohl & Schell, 1991, p. 90).⁴

Whilst *farrago* can refer to the individual, it also refers to the dysfunctional dynamic occurring in the group. Thus the *farrago* has a duality, a property of both an individual and also the group.

Whilst the confusion phenomenon in this study did not appear to be solely attributable to the behaviour of a *farrago*, behaviour of an individual was viewed as sustaining and promoting the confusion. Thus further investigation of Stohl and Schell's model is warranted.

The antecedents for emergence of a *farrago* include (a) individual habits, and (b) features of the "system". The individual habits include:

- *interpretive omnipotence* (I know the meaning.)
 - *a heroic stance* (I know what's best for the group.) and
 - *undifferentiated passion* (Only I care as much about this situation.)
- (Stohl & Schell, 1991, p. 99).

In the context of this study, Ken's behaviour in general, and also his behaviour in the incident associated with the confusion of the third session, fits some of the individual habits Stohl and Schell ascribe to the *farrago*.

In terms of *interpretive omnipotence*, whilst recounting the session, Ken held a strong view on the way the group should have approached the strategy task. He was adamant at the time of the incident that the strategies would not get them to their goals, and continued to support this line during interviews. Liam noted that Ken was

⁴ A dictionary definition of *farrago* is "a confused mixture" (Delbridge, 1985, p. 638)

unable to see what others, such as the facilitator and Stan, meant when they were explaining strategy development.

In terms of *undifferentiated passion*, Ken displayed passionate behaviour in actually standing up, moving to the facilitator's position, and taking the whiteboard marker from the facilitator. This was the only time in the five sessions that a participant moved from the seated position in the "U" - the domain of the participants - to the front of the room - the domain of the facilitator. Brian, described Ken as being "passionate" when recalling the incident.

Ken himself, in describing his own behaviour, spoke of the fact that things had stalled, and someone needed to give it a "kick start". This behaviour fits Stohl and Schell's *heroic stance*. Ken was in fact taking over the role of facilitator, likely due to the lack of clear leadership that was apparent to participants, like Liam.

Stohl and Schell note that the farrago can be identified via the characteristic that "members are almost consumed with the actions of one specific individual" (p. 93). Whilst the group's behaviour was not as extreme as "almost consumed" there were indicators of concern about Ken's behaviour generally. Prior to the GSS sessions, the manager was concerned about the inclusion or exclusion of one individual, based on his disruptive qualities. In the course of the sessions, Liam often referred to the disruption that Ken's joking would cause to his concentration. Stan, the manager, tended to concentrate on Ken's behaviour, and was particularly frustrated by it in the third session. Brian would refer to how much Ken talked, and the difficulty of "getting a word in". The facilitator observed that Ken appeared a clever and dominant individual within the group. The researcher observed, early on, that Ken had a strong personality.

Whilst Ken was seen by some as disruptive, he was an accepted and valued member of the group. Ken's verbal contributions during the sessions were accepted, as noted by Stan, and Terry referred to Ken's valued expertise. Stohl and Schell note that at the same time that the farrago is seen as disruptive, he or she has "a high degree of perceived competence and embody certain pivotal values of the group...the farrago remains an integral member of the group" (p. 97).

The features of the system that Stohl and Schell posit as supporting the farrago include:

- an overt policy of participatory decision making
- ill-defined lines of authority
- ambiguity of rules
- high task interdependence
- weak socialization processes (pp. 100-101).

The features of the system, revealed via glimpses of the organisational life of the group and also in the context of the confusion in the session, fit some of the features described by Stohl and Schell.

GSS sessions promote *participatory decision making*, via the democratic features of the technology, and the spirit promoted by the facilitator during pre-session meetings, and during session facilitation. Stan, as client sponsor, noted participation, involvement and ownership as the values of the process. Indeed, he described his management style as participative rather than directive, in a pre-session interview. His rationale for undertaking GSS had been based in part on the participatory nature of the process. Several participants, for example, Stan and Peter, noted that everyone had been given opportunity to participate during the sessions. Brian and Ken noted that they were part of a group where you could be open and "speak your mind". Liam noted that the ability to participate via the terminals, provided an alternative given his reluctance to speak in groups.

The uncertainty surrounding issues of *authority* and leadership was present during the confusion of the third session. Liam remarked that there was lack of leadership from leaders within the group, and also that the facilitator was unable to lead them out of their confusion. Ken's action in taking over the facilitation, albeit briefly, displayed an assumption on his part that the process leadership was absent or lacking at that point.

The *rules* of the facilitation and process could have been regarded as ambiguous, given the change from familiar processes undertaken by the facilitator, and the absence of the previously strong process leadership from the facilitator. Indeed, Ken's behaviour illustrated that he was prepared to take over the facilitation given the situation. At the point where confusion began, familiar processes had been disrupted, the facilitator was allowing a lot of talking amongst the group and allowing Ken to assume the authority of facilitator, for a period.

The task itself required the participation of all group members and thus was one where there was *high task interdependence*. The presence of everyone in the same room meant that group members could be strongly affected by each others' behaviour.

The *weak socialization practices* refers to the tendency of the system to accept and tolerate rather than modify or control individual's behaviour. No one, least of all the facilitator, sought to prevent Ken from behaving as he did during the incident. Both the facilitator and the group displayed tolerance to Ken's behaviour (such as constant joking) throughout the sessions, even though one participant, Liam, noted that he found it disruptive to his concentration.

Thus for the time that the facilitator and the group allowed Ken to speak and behave as he did, they sustained the farrago dynamic, contributing further to the confusion at the session.

In dealing with the farrago, Stohl and Schell suggest the strategy of *differentiation* (p. 107). This strategy includes (a) identifying other perspectives, (b) legitimating other perspectives, and (c) distinguishing and making visible to group members the characteristics of the group dynamic - the individual habits and the features of the system described above - that created the farrago.

One of the problems for the facilitator during Ken's behaviour in the third session was that whilst the facilitator sought to both reassure the participant and present an alternative perspective, (thus consistent with Stohl and Schell's recommended strategy of differentiation) the participant appeared to remain unconvinced of the validity of that perspective. The manager, Stan, also sought to legitimate the facilitator's perspective. Perhaps a saving grace for the group in this study was that the participant was prepared to accede leadership in terms of the process to the facilitator. Hence the questioning of leadership that occurred during the incident was temporary. However, after the "confusion" session, the participant Ken was seen to withdraw from the process, and was one who felt disappointed at the end of the sessions that they had not achieved the whole thing.

The difficulty in the context of this study was that the confusion in the group was not solely the work of the participant rather it followed the antecedents - the change in process by the facilitator, the difficulty of the task, and the preconceptions of the participants. This initial confusion created an environment where it was conducive

for the farrago as an actor to operate, and thus created further confusion for the other participants. Thus within this study, the facilitator stood to manage the confusion more by acting on the antecedents. However, in other GSS interventions, facilitators may have to manage confusion using differentiation tactics, given Stohl and Schell's claim that the farrago is a widespread small group dysfunction.

Facilitators stand to gain from being made aware of the nature of the farrago, given its identification as a dysfunctional group dynamic. The participative nature of GSS decision making is at least one "system" ingredient that may act as a catalyst for the emergence of a farrago. The facilitator as "process guide" for the group faces emergence of a farrago in situations where he or she lose the leadership of the process and there is an individual within the group who displays farrago habits.

GSS facilitators may also play a role beyond that of the GSS sessions, in terms of helping groups understand and deal with dysfunctional group dynamics such as the farrago. Given that the group, the organisation, and task processes continue beyond GSS sessions (Hoxmeier, 1995), facilitators concerned about long term group processes and implementation of strategy, (and possibly contracted to do so) may need to provide support to the group in the management of the farrago.

Stohl and Schell's suggested tactics involved in such facilitation, include; (a) reinforcing work habits that facilitate "differentiation", (b) creating opportunities for the problem person to be involved in productive ways, and (c) supporting and legitimating those people who are engaged in trying to alter the group's behaviour.

Whilst Clawson and Bostrom (1993), in their study of key facilitator behaviours, do not refer to management of *confusion* explicitly they do refer to managing conflict and negative emotions constructively. Whilst confusion is described as "disorder" and "lack of clearness or distinctness" (Delbridge, 1985, p. 393), conflict is to "clash", or be "in opposition or at variance" (Delbridge, 1985, p. 392). To some extent the confusion in the third session was also associated with different opinions of how to tackle the strategy formulation. Importantly, the confusion led to negative feelings, and a lack of perceived achievement. Thus it is important that facilitators understand the potential for confusion, roles like the farrago, and some tactics to either prevent confusion occurring, or to manage it constructively.

7.2.2. Preconceptions: Conflicting theories of negotiation

Kleinman (1982) describes the situation of conflicting theories of negotiation held by actors, causing confusion and conflict, in a group setting. Kleinman uses the term *negotiation* in a broad sense much like *interaction* referring to who should negotiate, how negotiation should take place, and about what issues. Whilst recognising that actors' implicit theories and assumptions about the negotiation process affect actual negotiation, Kleinman attempts to go one step further and answer what the nature of these conceptions are, and how they affect the negotiation process. Following discussion of a field study involving the board of directors of an organisation, Kleinman concludes:

'issue talk' may bring about clear, *explicit* disagreement among parties, while conceptions of negotiation may be an *implicit* source of conflict or confusion among those negotiating. This also suggests that when consensus is lacking on actors' theory of negotiation, their conceptions may block lines of action, or at least divert actors from doing what they set out to do. (p. 326)

Within the dissertation study, the third session involved negotiating what the task was, what the goal was and what an appropriate process was, to achieve the goal. The confusion of the third session seemed associated with differing implicit conceptions of these aspects. The heated discussion in the session, seemed a realisation that there was a problem with attempts from each of the actors to make explicit their positions so that consensus on the way forward could be made.

The lack of explication of the different actors' "theory" of strategy development, most of which was likely implicit or undeveloped, seemed to "block lines of action" and "divert actors from doing what they set out to do". Thus part of the confusion was time spent negotiating consensus on the task of strategy development. The "stalling" of the session or getting "bogged down" (as Terry described it) exemplified the conflict between "trying to do", yet not being "able to do" because of differing conceptions of the task. The behaviour of Ken was described by other participants as "he was trying to explain his conception of the task". At this stage it was noted by Liam that there was negotiation between Ken, the facilitator, and the manager over the nature of the task. Unfortunately, as was noted in the discussion of "Farrago" above, a consensus was not forthcoming, and in fact possibly contributed

to Ken's subsequent withdrawal from the process and disappointment at the final outcome.

Kleinman does not suggest tactics for managing the problem of differing conceptions of negotiating, noting that these are implicit, taken for granted and thus difficult to discern because actors will not talk about them. However, in the situation of the study reported in this dissertation, where differing conceptions are about a task, rather than the process of negotiation, there is opportunity to form consensus.

The suggested tactics include setting aside a time, prior to the commencement of the strategy task, to allow the facilitator to explain strategy development and also to allow participants the opportunity to describe their conceptions of the task. Strategy is an abstract concept, and has different meanings to different actors. It is likely sensitive to the position of actors within the organisation. In the example of this study, the supervisors' conceptions of strategy were likely narrower than the manager's conception of strategy. This may in part have explained the difficulty the group had in thinking beyond the manager's initial strategy suggestions.

Whilst prevention of confusion is ideal, in situations where confusion appears, facilitators need to allow sufficient time for each actor, including themselves, to explain their conception of the task, the goal, and the process. The facilitator in this study did attempt that and while the session was considered the worst of the five, it was not a total disaster, for example, participants still had enough faith to continue the next two sessions.

The message from this study, and the study of Kleinman, is that differing conceptions and preconceptions are ingredients for confusion in groups. In order to prevent this confusion, one avenue is to make the preconceptions explicit and attempt to form a consensus. Otherwise the way forward is problematic.

7.2.3. Leadership

Bowen, Miller, Rogers and Wood (1979), talk of confusion and chaos, with regard to learning in large groups. Their experiences are based on three large group workshops of 500-800 people. A five person team "facilitated" the workshops. During this facilitation, they spent large amounts of time "in great circles, involving the whole audience, with no agenda except that which emerged from all of us collectively" (p.

109). Thus the role of facilitation was not held by one person or a team, but rather was in the hands of the whole group.

The authors discuss the pattern of group development that appeared common to the large group experiences. This included a chaotic start described as "everyone groping", "confused", and "highly emotional". This is somewhat similar to the events of the third GSS session (Brian described Ken as "passionate" and Terry described the group interaction as "pretty excited"). The authors' description of the "chaos" includes the group making demands for leadership, structure, schedule, and imposed order. This is similar to Liam's concerns about the lack of guidance from the facilitator, and his inability to lead them out of the confusion. In addition Bowen et al., describe a "desire to do something, anything, rather than stay with the unknown, and the anxiety it creates" (p. 110). This echoes some of the calls of participants, for example, Terry (after the session), to have undertaken a brainstorm straight away, to at least get the ideas out and the "thought processes going". Ken's behaviour, in his own words "to get things going", also correlates to this "desire to do something". Bowen et al. describe some of the feelings experienced by the participants as "Frustration, anger and disappointment, because of the unmet expectations." (p. 110). This is similar to the participants' experience of the GSS session, with participants like Stan noting their frustration, and most of the group feeling they had not achieved.

Bowen et al.'s thesis is directed towards the ability of large groups to develop their own participatory mode of decision making. This is in contrast to the philosophy applied within the GSS research study where the facilitator is seen as providing process support for specific task accomplishment. It is interesting, however, that the dynamics of confusion are paralleled in Bowen et al.'s large groups and the GSS study. A common ingredient to the confusion seems to be the lack of clear and common direction, often seen as being provided by a leader, guide or facilitator. In the absence of such leadership the group itself has to search for its own direction. In the environment of Bowen et al.'s study the group was empowered to exercise its own direction whilst in the GSS research, role of direction returned to the facilitator over time as the group resolved some of its confusion.

7.3. Summary

The literature search regarding familiarisation provided Louis' (1980) model regarding organisational entry for newcomers, and some suggested tactics for dealing with entry. Kanachowski (1992) reinforced some of the concerns about poor typing and different computer skills among group members. Boston (1993) provided some tips for dealing with executives' typing anxiety. Kreuger (1988) provided a framework for understanding novice users' computer anxiety. Clawson and Bostrom (1993) revealed that GSS facilitators regard promoting participants understanding of the technology and comfort, as an important behaviour.

The literature search confirmed common aspects of confusion in groups. This included a lack of common direction, differing conceptions of task, and the role of focal actors (the farrago) in promoting confusion. A lack of achievement and negative perceptions of the situation are commonly associated with confusion.

The lack of report of *confusion* within GSS studies is interesting. Several possibilities are proffered.

GSS is concerned with structured, well-planned meetings. These are the very things that reduce the possibility for confusion. Thus if GSS really works, then confusion may well be a rarer phenomenon in GSS sessions as opposed to general group situations. However, the lack of report, may also reflect the relative paucity of field and case study research where such phenomena could occur.

The dominant research method of laboratory experimentation reduces the possibility of discovering confusion. Laboratory experimentation, by nature, is controlled and carefully planned, and uses tasks that are within the grasp of the participants. Processes are carefully fitted to tasks. Subjects are briefed on task and process beforehand. Piloting is usually carried out to make sure the experiment "works". Given such control it is unlikely that the ingredients for confusion, for example, radical changes in process, difficulty of task, and preconceptions, are likely to operate.

In the next chapter, conclusions are made about the two major findings and the research methodology.

Chapter 8. Conclusions

In this chapter, the research study is summarised. The research questions are revisited, and study limitations with respect to the findings and methodology are described. Implications for GSS facilitators and GSS designers are stated. Research implications are covered with respect to the findings and the methodology. Recommendations for future research are included.

8.1. Summary

The research question that guided this study was:

How do perceptions of GSS change for individual participants of a client group undergoing a series of GSS supported meetings over time?

The major finding of this research is that a process of familiarisation takes place. The finding is significant as it has implications for the facilitation of GSS, and for GSS research. The process of familiarisation has not previously been described in the context of real world application of GSS with an empirical grounding in the participant viewpoint.

Familiarisation consisted of a process whereby participants confronted a foreign environment which over time was reconstructed as a familiar environment. The foreign environment included unfamiliar people, task, process and technology. Unfamiliar people included the facilitation team of process facilitator and technical facilitator. The unfamiliar task was that of strategic planning which had a long term focus and a broad scope in contrast to the short term focus and narrow scope of information sharing at regular staff meetings. The unfamiliar process comprised the GSS process of idea generation followed by idea organisation and then idea evaluation. The unfamiliar technology was the notebook computers used for entering ideas and ratings. For computer novices, the technology was a key aspect of the foreign environment and was associated with fears and nervousness about competent use.

Following the experience of the first GSS session, the environment was reconstructed by participants as a familiar environment. Participants had met the facilitation team and had a clearer idea of their respective roles. The broad task of strategic planning was more familiar although each session was structured as a sub-task which brought some novelty. Having undertaken the processes of brainstorming, discussion and organisation, and evaluation in the first session participants were more familiar with the inputs required, the processing of information and the outputs produced. The technology was less intimidating to the computer novices as they now understood that only limited input was required and they were more confident that they could perform adequately.

In the course of the familiarisation process, participant feelings were transformed from fear, nervousness and worry to comfort, confidence and enjoyment. Associated with these changes was a change in participation from a few dominating and some holding back, to a more even and greater level of participation.

As part of the familiarisation process, the issue of computer anxiety for computer novices was identified. Computer anxiety has received little attention in the GSS literature. Related to computer anxiety was the issue of differences in computer skills, compromising the GSS ideal of equal opportunity for participation. This issue has received little attention in the GSS literature.

Recommendations for GSS practice are directed toward facilitators. Firstly facilitators need to understand the familiarisation process - the dimensions, the effect of time, changes in participant feelings and changes in participant behaviour. The dimensions include the people, process, task, technology, feelings, participation, the familiar environment and the foreign environment. The effect of time consists of the pre-GSS experience, then the first GSS experience and then the second GSS experience. The changes in participant feelings are from fearful, defensive and intimidated to enjoyment, comfort and confidence. Changes in behaviour include greater and more even participation.

Secondly, facilitators can consider a set of tactics to manage familiarisation and hence achieve benefits such as increased participation. These tactics include general tactics, and tactics that can be considered prior to the first GSS session, in the early part of the first GSS session, during the first and subsequent sessions, and following the first and subsequent GSS sessions. A sample tactic is to provide briefings on roles, technology, process and task - in particular stressing the differences from the

participants' familiar environment. Another tactic is to provide practice with the technology. A general tactic is to consider staging the intervention so that participants first undertake tasks and/or processes in non-GSS environments before utilising GSS at a later stage. This way participants are not having to cope with all dimensions of the foreign environment at once and could be eased in gradually. It may also be prudent not to undertake critical parts of a task in the first GSS session, given that participants are coping with many new aspects and may be experiencing overload.

A second finding is that processes of confusion can occur in GSS sessions. This has significant implications for GSS practice and is an issue for further GSS research. Confusion has not previously been identified in the GSS literature.

Confusion was comprised of antecedents, a cycle of confusion and negative consequences. Within this study, a radical change in process by the facilitator, associated with a difficult task and preconceptions contributed to a lack of goal, process and task clarity. The confusion bred more confusion and ultimately led to negative perceptions.

The antecedents included a radical change in process, a difficult task, and preconceptions about that task. The radical change in process initiated by the facilitator was from a familiar anonymous idea generation process via the keyboard to an identified verbal process. The difficult task was that of formulating strategy. Preconceptions about the task included participant views about the goals of the task and fears about the ability to undertake it.

The antecedents provided a fertile ground for initial confusion which was then exasperated by the behaviour of a key actor. This behaviour was later identified as part of the *farrago* group dynamic identified by Stohl and Schell (1991, p. 90).

Interactions with this type of problematic person often result in confusion as to responsibilities, group tasks, decision-making procedures, and so on, and these interactions cause the group itself to become confused.

The capacity of confusion to generate further confusion within the group was referred to as a cycle of confusion.

The consequences of the confusion process were a perceived lack of achievement and lack of productivity associated with feelings of frustration and negativity. These consequences did not disappear with the end of the session. They lingered in remaining sessions manifesting in the withdrawal of a previously participative member.

The recommendations for GSS facilitators are to understand the confusion process and prevent it where possible. When confusion does occur facilitators need to be prepared to manage it at the session and after the session.

Understanding confusion requires understanding the antecedents, the consequences and the capacity for confusion to create further confusion. In particular the role of the farrago needs to be understood. This role is that of the problematic actor who has the capacity to create confusion concerning responsibilities, the group task, decision making procedures, and the group interactions.

Prevention of confusion can be considered at different stages of GSS sessions. For example, prior to a session, a facilitator may need to prepare participants for difficult tasks. This could include allowing participants to express their concerns about the task and their conceptions of the task. Additionally, facilitators need to be alert to individuals whose behaviour may cause confusion - the farrago dynamic. At the GSS session, facilitators should retain familiar processes particularly those which are consistent with the use of the GSS technology such as anonymity and equal opportunity for participation.

When confusion does occur at a session, facilitators need to engage in tactics that allow each person to express their viewpoint. From here different points of view can be identified and legitimated and consensus formed through negotiation. Participants are likely to require reassurance and will look to the facilitator for leadership. The understanding of the participants can be enhanced by the facilitator identifying and making explicit the dynamics that have led to the confusion.

Following a session where confusion has occurred facilitators should debrief the participants so that they do not withdraw participation. Preparation for future GSS sessions should include recapping to allow group members to consolidate and orientate.

The findings concerning the familiarisation process and the confusion process were emerged in the course of the field study through close attention to participant viewpoints. Interviews provided an interactive environment where the researcher could get close to the participant's perspective. The interviews were conducted prior to the GSS intervention and then following each session. Every participant was interviewed and recorded resulting in 39 audio tapes which were then transcribed. The transcriptions acted as data which could be compared and contrasted among participants and across sessions to emerge those aspects that seemed widespread and significant. This led to the identification and description of the familiarisation process and the confusion process.

The originality of this study is comprised of the use of an interpretivist paradigm, the field setting, the longitudinal aspect, the grounded/inductive approach, and extensive use of interviews to gain the participant viewpoint. The scope of the study however is limited because of the depth undertaken in the interviewing process. Findings are grounded in the context of the study and transfer to other contexts is contingent on the match between the contexts. However, a working hypothesis is presented to guide further research:

H1: Novice GSS participants will feel more comfortable, participate more and be more productive in their second (and subsequent) GSS experiences compared to their first GSS experience.

Based on this study, effects will be larger for:

GSS novices who are also:

- computer anxious
- shy in new environments.

and where facilitators:

- provide reassurance
- allow participants to work within their comfort zone
- allow novices to practice on the technology
- brief participants thoroughly on roles, process, task and technology.

Effects of familiarisation can be negated by:

- difficult tasks
- radical changes in process by the facilitator

- preconceptions held by participants.

Naturally, further research may show that factors beyond those identified here will be associated with varying changes in comfort, participation and productivity.

With regard to participation there were some indicators in this study that norms of (verbal) participation established in the group prior to GSS carried over into the GSS activity. Neither actions of the facilitator, nor the structures provided by the technology appeared to have significant effects on the pattern of verbal participation. The tentative nature of these observations is a signal for further research into the nature of participation (written, verbal and non-verbal) at GSS meetings. Such research could consider:

- the nature of participation in non-GSS group meetings
- the nature of participation in GSS meetings
- how participation should be identified, observed, measured;
- whether even participation is desirable
- whether even participation is achievable
- the effects of group history on participation
- the effects of different skill levels on participation
- the effects of familiarity with GSS on participation
- the role of the GSS facilitator in group participation
- the role of GSS technology in group participation.

8.2. Study Limitations

Limitations of a study result from the choice of paradigm, methodology, and research design. Most importantly a study is limited by the abilities and history of the researcher, and the ethics and politics of the research setting. Some aspects, for example, the choice of an interpretivist rather than a positivist approach, are principally under the control of the researcher, although even that has to be negotiated with the supervisors and the University graduate study committees. Other aspects, such as the research design in a field setting, are negotiated contracts between researcher, University, client organisation, and consulting organisation. The difficulties of such negotiations reflect the paucity of field-based GSS research, especially longitudinal research.

The reader is reminded that the highest level assumptions of the interpretivist paradigm are:

- The world is constructed (and reconstructed over time) in the minds of actors.
- The researcher is one of those actors, active in the constructions.
- Research methods are aimed at eliciting actors' constructions, attempting then to construct an informed and useful interpretation on which there is some consensus.

The qualities of a research study are to be judged via criteria of credibility, transferability, dependability, and confirmability. The definitions of these are taken from Chapter Four and repeated in Table 8.1.

Table 8.1 Criteria for judging interpretivist research (Guba & Lincoln, 1989)

Credibility represents the degree of isomorphism between "the constructed realities of respondents (or stakeholders) and those realities as represented by the [researcher] and attributed to various stakeholders." (p. 237)

Transferability represents the degree of transfer between "sending and receiving contexts" (p. 241) where the sending context is that of the study and inquirer, and the receiving context is that of some other who wishes to apply the study findings to some situation. The original inquirer is responsible for describing the study sufficiently richly so that receivers can make judgments about the transferability.

Confirmability represents the degree to which:

data, interpretations, and outcomes of inquiries are rooted in contexts and persons apart from the [researcher] and are not simply figments of the [researcher's] imagination...data (constructions, assertions, facts, and so on) can be tracked to their sources, and that the logic used to assemble the interpretations into structurally coherent and corroborating wholes is both explicit and implicit in the narrative of a case study (p. 243).

Dependability (p. 242) is concerned with the "stability of the data over time". It requires that "methodological changes and shifts in constructions are ... both tracked and trackable (publicly inspectable)".

The tactics for achieving these criteria were presented in Chapter Four and are repeated below in Table 8.2.

Table 8.2 Summary of techniques for establishing trustworthiness (Lincoln & Guba, 1985, p. 328)

Criterion Area	Technique
Credibility	(1) prolonged engagement
	(2) persistent observation
	(3) triangulation (sources, methods, and investigators)
	(4) peer debriefing
	(5) negative case analysis
	(6) referential adequacy
	(7) member checks (in process and terminal)
Transferability	(8) thick description
Dependability	(9) the dependability audit, including the audit trail
Confirmability	(10) the confirmability audit, including the audit trail
All of the above	(11) the reflexive journal

In terms of credibility, the prolonged engagement and persistent observation was limited to the 40 hours of interviews and the 15 hours of GSS sessions over the four weeks of the sessions. Whilst one could argue for longer engagement prior to the GSS sessions, greater engagement between GSS sessions, and engagement extending beyond the GSS sessions, there was a substantial period of interaction between the researcher, and the participants. The focus of the study was on participant perceptions of GSS sessions, thus some boundaries needed to be observed.

Triangulation amongst investigators was not possible in light of the requirement of the dissertation study that it is the work of the author alone, however, it is a limitation of the credibility checks. Transcription of the videotaped data could have been used to substantiate behaviours, however, the focus of the study was on participant perceptions, thus the primary use of transcripts of the interview data.

Peer debriefing was limited to supervisors, transcription auditors and code auditors. In a multi-investigator study, peers could have been fellow researchers.

Referential adequacy was catered for by not analysing the videotape data. Whilst not as pertinent as the interview data, some balance had to be maintained between analysing data and leaving some for testing.

Member checks were limited to checking in process. Whilst one could argue that terminal checks are important, the argument was proffered that members are likely to

reconstruct their original interview constructions through lack of recall, learning and the passage of time. Additionally, it is argued that the researcher is the best informed to make interpretations that are consistent with the research questions, and are useful for practitioners and researchers.

With regards to transferability Guba and Lincoln (1989) note that the onus is on the source study researcher to describe the context, whereas the onus is on the target context person to judge how closely the contexts match, and assess whether differences are likely to affect the researcher's recommendations. Thus the study is limited via the similarity of the study context to the receiving context - the context to which a reader wishes to consider the applicability of the findings.

Mennecke, Hoffer and Wynne (1992, p. 120) offer a reasonable GSS framework in which to summarise the study context (see Table 8.3). However, for the reader who requires more detail then they should read Chapter Five "Case description".

Table 8.3 Summary of this study context as an aid to determining transferability. (Adapted from Mennecke, Hoffer & Wynne, 1992, p. 120)

-
- *Facilitation*
 - External, active process, male, experienced GSS facilitator
 - External, technical, female, experienced GSS chauffeur
 - *Task*
 - Strategic planning
 - Structured by facilitator into five sub-tasks - Now (SWOT), Desired Future, Strategies, Evaluation of Strategies and Action Plan.
 - *Technological support*
 - Idea generation, discussion and organisation, and evaluation tools drawn from MeetingWorks (DOS version). Multiple criteria analysis tool used for Evaluation of Strategies.
 - Environment - Off work site, at GSS Facility at Curtin University
 - *Process*
 - Major process design - Five sessions highly structured prior to session commencement, by facilitation team. Facilitation team active in leading group through the stages, demonstrating many of the key GSS facilitator behaviours described by Clawson and Bostrom (1993, p. 5).
 - Sub-process design - Private electronic brainstorm followed by, public verbal and electronic discussion, and organisation, then private electronic evaluation, followed by public discussion of results.
 - *Individuals*
 - computer novices and computer experienced
 - strategic planning novices
 - GSS novices
 - *Group*
 - established and familiar
 - size 6-7
 - one female, 6 males
 - two management levels - manager and supervisors
 - *Organisation*
 - Department of Local Government
 - *Meeting Context*
 - manager with a participative leadership style looking to facilitate change
 - incentive - adjust to changing external environment
 - *Structural factors*
 - pre-GSS briefing meeting
 - five sessions of three hours duration held over four weeks
 - face-to-face (same time, same place) meetings
-

Process can be difficult to describe, yet it is possibly a large source of variation among GSS contexts. Indeed Adaptive Structuration Theory (Poole & DeSanctis, 1990) is based around the concept that technology is appropriated or used differently

in different contexts. A dictionary definition of process is "a systematic series of actions directed to some end" (Delbridge, 1985, p. 1354). Thus the description of the five sub-tasks and the GSS tools used for each of the five sessions describe one aspect of process (see Table 5.1 "The GSS script"). Describing the nature of the facilitation adds to the process description (see Chapter One, Section 1.3.5.2 "The GSS In This Study"). Describing the group interactions is more problematic, particularly in this study where observed group interaction was not the focus of the study thus detailed interaction process coding was not undertaken. There is, however, the participant viewpoint of the group interactions described in Chapter Six, Section 6.4.16 "Group and group interaction". Additionally, there is a videotape record of the sessions.

In spite of the limited context considered in this study, the researcher asserts that the familiarisation process is a general phenomenon pertaining to GSS novices. The effects on productivity and participation are hypothesised to be more pronounced in groups that have the characteristics of this study such as:

- computer anxious individuals
- mixed levels of computer skills
- task novices
- GSS process novices

One group that might display anxiety or perhaps outright dislike of the computer interface are executives. Boston (1993) notes that executives "hate typing" (p. 1). Explanations could be, typing and computer skills are not a necessary skill to become an executive, and executives usually have a secretary to undertake such work. Additionally, he notes "many first time users will be afraid of the system". His solution is to "get participants started on the system as soon as they walk in the door" (p. 2). Whilst early hands-on practice is a recommendation of the dissertation study, the researcher does not advocate doing this in the absence of participant briefings about roles, task, process, and technology. Boston's comments about executives do, however, suggest that they are a group who would benefit from a managed approach to familiarisation.

Whilst the level of typing and computer skills is increasing as PCs become more widespread, there are significant sets of individuals in organisations who might be anxious about performing these skills in a group situation, particularly if they feel their power and status is compromised through having poor skill levels. Senior

managers who have not had to use PCs are likely to be one such group. Persons with disabilities, that compromise their competencies when faced with the standard GSS keyboard and monitor interface, may be another group who could display computer anxiety.

Dependability and confirmability audits were described in Chapter Four. The main limitations here are the challenges of providing an economical summary of the research data, process and products. It is argued that the dissertation and access to the interview transcripts provides a detailed summary of these aspects.

A limitation of the research design was the use of five GSS sessions. Groups undertaking a greater number of GSS sessions may experience phenomena beyond the familiarisation reported in this study. Increased learning about the system might make participants more likely to make process suggestions in a similar fashion to the way people suggest taking a show of hands at traditional meetings. Possibly the group might wish to undertake process facilitation internally rather than relying on an external consultant. Additionally, over time, participants might become more critical of the GSS system, choosing to use it for specific contexts and adapting it to suit their needs. Some modes of use might become relatively stable in much the same way as groups at traditional meetings adopt their own ways of operating. There is of course the possibility that groups cease to use the GSS (Zigurs, DeSanctis & Billingsley, 1991).

The longitudinal aspect of the study was limited to the pre-GSS interviews and the five post session interviews. There is a pre-GSS history and a post-GSS history that is largely unknown. A deeper study of the groups' pre-GSS history could, for example, have included observation of the monthly staff meetings and some interviewing to obtain a deeper understanding of participant perceptions prior to GSS. Similarly the post GSS experience could have been followed up. A recommendation for future research is to investigate how group interactions change following a GSS intervention. It may be that some processes and values learnt during GSS interventions are adopted by groups in their environments outside of GSS. Perhaps it is possible to use GSS as a change agent to improve process design for meetings, group-work and teamwork. Hoxmeier (1995) has conducted some research on this aspect describing GSS as a "learning environment", and providing some evidence that GSS groups benefit in their post GSS meeting environment.

The research was primarily focussed on participant perceptions rather than those of the facilitation team. Of additional interest is how perceptions of the facilitator and the chauffeur change in the course of a facilitation intervention. The facilitation team may face unfamiliar aspects including unfamiliar participants, unknowns about the individuals' expertise and their relationships within the group, and how the group will interact with the GSS process. Thus one would expect the facilitation team to undergo some familiarisation process each time they deal with a new group. This limitation of the current study is thus also a recommendation for future research.

There were several limitations of the interviews. A choice was made to use a semi-structured interview. The structure would allow some basic features of the GSS environment to be covered, yet still allow sufficient scope for participants to describe their viewpoint. An argument could be mounted for either a less structured interview or a more structured interview. It was felt that a less structured interview could suffer from a lack of interaction, and lose a basis for longitudinal comparisons. A more structured interview would have imposed researcher constructs upon the participants and lost the emergent, inductive property of the research. Having identified the familiarisation process in this study a more focussed data collection is possible in future research.

It is debateable whether a greater depth of interview would have been possible with the participants. Each of the seven participants was interviewed for about six hours. The interviewer was hard pressed to undertake all interviews between each of the sessions. Indeed the decision to undertake deeper interviews was based on the preliminary field work when it was found that group interviews were inadequate.

The researcher did feel that the interviewing process affected the GSS process, in a positive manner. Responses from the participants about the effects of the interview process supported this. These responses were obtained in the course of the final interview. The interviews appeared to act like a debriefing, psychologically unloading the thoughts and feelings of the participants. This possibly led to 'smoother' GSS sessions, given that participants had increased time to make sense of the GSS experience. Indeed, from a GSS practice perspective a recommendation is to debrief participants between sessions in order that the group and facilitator can learn from experiences to improve subsequent sessions. Additionally, there was likely a Hawthorne effect, the presence of an interested, friendly researcher increasing the performance of participants at the GSS sessions.

The subjectivity of the researcher is a concept embraced in interpretivist research in the assumption of the close relationship between the researcher and the known (or knowable). The positioning of the researcher was described in Chapter Four. As far as possible, the researcher has attempted to describe his role, the data sources, and the processes used to convert the data into findings. Naturally, the findings are in part a product of the researcher's beliefs, values, and attitudes. The researcher argues, however, that the findings are substantively ground in the perceptions of GSS participants and are a sophisticated and informed construction.

8.3. Implications for GSS Practice

The recommendations for GSS practice are directed primarily at GSS facilitators as they have responsibility for designing and managing *process* which is what the findings of this study are concerned with.

8.3.1. Facilitators

A summary of facilitator tactics for managing familiarisation is given in Table 8.4. It is not intended that every tactic should be undertaken but rather should be thoughtfully considered in the context of a specific GSS intervention. For example, with computer anxious participants, technology familiarisation is particularly important. Groups where computer skills are mixed require assurances that low skill participants will not be disadvantaged. It is assumed that the GSS intervention involves GSS naive participants. Even if participants have had some GSS experience, with other facilitators in different contexts, it may be better to adopt a cautious approach and assume naivety. Whilst there is the expectation that participants will repeatedly use the GSS, most of the tactics listed in the table are relevant to single occasion use. There is an assumption that the GSS intervention is of some importance and thus warrants careful consideration of the aspects below.

Table 8.4 Managing familiarisation: Suggested facilitation tactics

UNDERSTAND THE FAMILIARISATION PROCESS

- dimensions - people, roles, process, task, technology, feelings, participation, familiar environment, foreign environment
- time - pre-GSS experience, first GSS experience, second GSS experience
- changes in feelings from fearful, defensive, and intimidated, to enjoyment, comfortable, and confident
- changes in behaviour such as greater task participation (more people contributing more ideas)

*LEVERAGING TACTICS TO CONSIDER**General*

- use a standard, explicit, presentation format - for example a slide show, to avoid forgetting to explain thoroughly to new participants
- consider staging the familiarisation process by having participants first learn processes and tasks in non-GSS environments, then utilise GSS

Prior to the first GSS session

- meet with participants
- provide briefing on roles (participant, chauffeur, facilitator, and technology), technology, process (including ground rules) and task - elaborate on differences to participants' familiar environment
- provide definitions of unfamiliar terms eg brainstorm, anonymity, chauffeur
- gather background on participants, in particular computer anxiety and computer skills -use questionnaire
- consider use of one-to-one interviews to build empathy and rapport
- brief participants on the process of familiarisation
- provide participants with references to other (familiar) organisations' use of GSS
- use a handout to reinforce roles, technology, task, and process

Early part of first GSS session

- reinforce roles, task, technology, and process, and ground rules
- encourage openness, for example, encourage questions and points of clarification
- introduce a group dictionary concept for defining terms
- provide an environment where people are comfortable with making mistakes
- describe the skills and competencies required, and provide support for participants to achieve them
- provide keyboard orientation
- warm up/practice on technology - provide individual support
- warm up/practice/demonstration on process

During first and subsequent GSS sessions

- use breaks to allow participants to interact informally with each other, the facilitator, and the chauffeur
- encourage links between more experienced/skilled participants, and less experienced/skilled participants
- consider using a limited number of ideas per person to promote equality of participation
- allow sufficient time for poor typists to complete ideas
- suggest participants keep ideas brief
- provide individual support for participants with problems with the computer interface
- consider benefits of keeping process consistent over time and consistent with the ground rules
- allow time and encourage participants to ask questions
- deal with participant concerns

Following first and subsequent GSS sessions

- allow participants to evaluate the experience (e.g. via questionnaire, and debrief) and take actions based on that feedback
 - allow participants to express concerns about the next GSS session
-

Of primary importance is that facilitators consider familiarisation and try to understand its nature. Tactics are then separated into the phases of GSS meetings, that is, pre-session, during the session, and post session.

With regard to the management of confusion, a list of facilitator tactics are provided in Table 8.5. Prevention is the preferred strategy, however, it is accepted and expected that confusion can arise in groups despite a facilitator's best efforts, and thus appropriate intervening tactics are necessary.

Table 8.5 Managing confusion: Suggested facilitation tactics

UNDERSTANDING

- understand the nature of confusion - antecedents, consequences, and the capacity for confusion to generate further confusion
- understand the role of the farrago

PREVENTION IF POSSIBLE

Prior to a GSS session

- anticipate difficult tasks (e.g. strategy formulation) and prepare participants
- take some time to discuss the nature of the task, the goal, and processes to achieve the goal
- allow participants to express their conceptions of task, goal, and process
- deal with participant concerns, doubts about abilities to perform a task
- be aware of different levels of thinking in mixed level groups, and at the session make use of GSS tools, like the outliner, to encompass them
- if used to facilitating in different environments take extra care to prepare for GSS environments
- use language that is meaningful to participants, not jargon
- identify individuals whose behaviour may cause confusion (the farrago)

At the GSS session

- retain familiar processes that are faithful to the spirit of GSS (e.g. anonymity and equal opportunity for participation) and be wary of processes that are unfaithful
- make reasons for process changes explicit to participants

Table 8.5 ctd. Managing confusion: Suggested facilitation tactics

WHEN CONFUSION OCCURS AT THE GSS SESSION

- take time to allow every person to express their conceptions of the task, the goal, and the process, and to vent negative feelings
- identify, and legitimate different points of view
- reassure participants
- attempt to form a consensus on issues through negotiation
- expect that participants will look to the facilitator for leadership
- identify, and make explicit the dynamic that led to the confusion

DEALING WITH THE AFTERMATH

- debrief participants - reassure participants so they don't withdraw participation
 - prepare carefully for following GSS sessions - consider recapping to allow group to consolidate and orientate
-

8.3.2. Designers

Note that the recommendations for software designers have been limited to those relating to the major findings. In addition, numerous ideas for software improvements occurred in the course of the study. For example, it was obvious from interviews with participants, that the tabular and graphical summaries associated with the multiple criteria analysis tools required improvement. Whilst not described in this thesis, several recommendations were forwarded to Lewis, the original author of MeetingWorks, and have found their way into the MeetingWorks for Windows version.

The recommendations that arise for software designers related to the familiarisation and confusion processes are given in Table 8.6.

Table 8.6 Functions to be provided in GSS software

-
- provide a presentation module that can be run to brief participants on roles, process (including ground rules), and technology - the presentation module could be a template allowing customisation
 - to promote democracy in the context of participants with differing computer skills - provide an option for an equal number of ideas per person in idea generation
-

The presentation module could include the software company's view of the roles of facilitator, chauffeur and participants, and the role of the technology. Guidelines for process, including suggestions for ground rules, could be included along with orientation materials regarding the mouse and keyboard. A template could be provided that allowed facilitators to customise any of the aspects to suit their own facilitation style or a particular meeting context.

Support for facilitators could be extended to allow inclusion of advice or check lists, for example, those in Tables 8.4 and 8.5. This leads to the concept of a facilitator knowledge base. Ideally, support would be provided to allow learning associated with specific GSS sessions to be stored. Whilst some of this could be specific to the next GSS session, with a specific group say, over time a facilitator could index the knowledge to allow retrieval when issues arose, say computer anxiety, or confusion. Perhaps in the future, GSS software could be developed to provide support for facilitator knowledge management, particularly process design, in the same way that software currently provides support for managing content generated during a meeting. The focus, however, may be more on support prior to and between meetings, given that much of the facilitator's work at meetings involves thinking and acting 'on the feet'.¹ Further research is recommended.

¹ Bostrom, Anson and Clawson (1993, p. 164) note that most GSS technologies do not address support for pre-meeting activities. Additionally, they note that more research on facilitation is necessary in order to determine how database and knowledge base technologies may be incorporated.

8.4. Implications for GSS Research

The implications of this study for GSS research are described with respect to the findings, and the inquiry process - paradigm and methodology.

8.4.1. Findings

The discovery of the changes in perceptions over the first two GSS sessions with respect to familiarisation implies that in the field there are effects of time or length of GSS experience, and these are particularly apparent in the initial experience of GSS. Thus GSS research which is based on single occasion usage, is taking place during the time when familiarisation effects are at their strongest. This study suggested that comfort and participation are lower in the first GSS experience. It seems likely then that single occasion research is not observing and measuring the potential benefits of GSS as it is being conducted at a time when participants are still adapting to a foreign environment. Thus single occasion research may be understating the benefits of GSS.

Computer anxiety has not been a topic of GSS research, yet this study showed that there are real world users who suffer from anxiety and the associated negative effects. Additionally, computer skills have not been considered a major issue. However, this study suggested that differences in computer skills amongst group members is a source of concern in terms of differential performance. Given that GSS is claimed to reduce domination and promote even participation, there needs to be further research into the situations where this can be compromised.

In general, findings from experimental GSS research have been mixed (Dennis & Gallupe, 1993). Familiarisation may be one source of variation. A common research design is one where the treatment is the presence or absence of GSS technology, yet contrary to expectations, absence of technology proves at least as good or even superior. This unexpected finding may be due to the difference in familiarity, particularly in the context of single occasion usage. Participants are still getting used to the interface, the people, the roles and the GSS process, thus their comfort and participation is yet to surpass that associated with the more familiar manual environment. The time to familiarise is likely longer in situations without briefings, and warm-ups and where active process and technical facilitation, from experienced facilitators, is not provided. A recommendation for experimental research is thus to

increase the use of longitudinal designs. Factors such as the amount of training, and GSS experience could be considered as independent variables. At least they should be described so that judgments can be made about their effects and the comparability of findings between studies.

It is noted that repeated measures designs are a popular experimental design. Based on this study's findings it seems likely that such designs should show improved comfort, and participation levels, particularly when comparing second occasion usage to the first occasion. If these effects are particularly strong, then the ability to discern treatment differences may be more difficult in the first few occasions of usage. Repeated measures designs have the characteristic of allowing direct questions of participants such as "how do the two treatments compare?". In the situation of two sessions, and in the light of the findings of this study, it seems likely that familiarisation effects would result in GSS support being rated more favourably if met on the second occasion when participants are familiar with each other, the facilitator and the process. This highlights the need for careful consideration of order (sometimes called learning) effects.

Although not covered in this study, *learning* is a related aspect to the process of familiarisation. A dictionary definition of learning is "to acquire knowledge of or skill in by study, instruction or experience" and "to acquire (a habit or the like)" (Delbridge, 1985, p. 987). Clearly, during familiarisation in the first two sessions, the participants in this study were learning about the roles, the process, and the technology. By the third session processes such as brainstorm were well known, becoming a habit for the group. Indeed, the confusion of the third session was in part related to facilitator-led changes to the familiar brainstorm process. Although not developed in the analysis, it was noted that one individual who was initially sceptical about the use of numbers for conveying meaning, became more positive as they learnt more about the evaluation process. Questions are raised concerning the conception of GSS as a learning environment. For example:

- What things are learnt during GSS sessions?
- How long does it take for things to become habits?
- How can learning processes be designed and managed?
- After GSS interventions, what is taken back to the workplace?
- How can GSS be used to help users learn about process design?

The study of learning and GSS is recommended as an area for future research.

The confusion process illustrates the complexity of real world GSS usage. Despite the familiarity of several GSS sessions usage it is still possible for confusion to emerge, with negative consequences such as, perceptions of lack of achievement, and generally negative feelings. A difficult task, preconceptions of participants, and facilitator-led changes in process are sufficient to create considerable turmoil. It is doubtful that these issues would be identified in laboratory situations, given the nature of experimental control and the use of student subjects. Yet for GSS practice it is critical that such issues are identified along with recommendations for their management. For GSS research it is important that the methods of research are not constrained, such that phenomena are overlooked. The recommendation is thus for further research in field settings.

8.4.2. Paradigm and Methodology

Researchers in GSS have been constrained in knowledge acquisition within a positivist paradigm. The recognition that Information Systems is the study of a socio-technical system has led some researchers to contemplate other paradigms. This study has been one of the few, but hopefully a growing minority.

Embracing an interpretivist paradigm has the advantage of encouraging, rather than discouraging interaction between the researcher and the actors. The author asserts that adopting a distant stance is inappropriate when one is concerned with understanding actor viewpoints. By getting close to actors, researchers can begin to understand what actors think, what things mean to them, and why they behave the way they do. Language, spoken or written, must form a major data source as it is the fundamental means by which humans construct their worlds and communicate.

The author does not advocate abandoning positivist paradigm research but rather encouraging interpretivist research so that there is a diversity and pluralism of knowledge acquisition. Austin (1990) discusses accommodation between paradigms observing:

accommodation defined as *general respect* involves understanding the key contribution and issues of each paradigm, appreciating the views of scholars who subscribe to different paradigms and one's own, and letting all paradigms try to improve [GSS] problems. It is not necessary for one

researcher to wear all glasses, but each researcher should appreciate others' views. [*italics added*] (pp. 137-138)

If interpretivist research is encouraged, then it should be possible to improve the quality of such research through experience, and debate on what constitutes the rules, criteria, and acceptable standards. The author recognises that there are many perspectives on interpretivist research, for example, symbolic interactionism, hermeneutics, and phenomenology, however they are all united by a concern for meaning and the actors' point of view. The works of the authors, Guba and Lincoln (Lincoln & Guba, 1985; Guba & Lincoln, 1989; Guba, 1990) provide a useful framework for guiding interpretivist research, and as such should be considered by the GSS research community.

At a methodological level, there are several recommendations to GSS researchers:

- consider an inductive, emergent approach;
- undertake longitudinal research;
- undertake field based research.

Whilst an inductive approach is time consuming and full of uncertainty for the researcher, the advantage is that emerged concepts are grounded in the data and thus are, by definition, closely related to the realities of the study.

In the light of the findings of changes in perceptions and behaviour at GSS sessions over time, the study has reinforced the need for more longitudinal research in order to understand change processes. Time is clearly an important contextual factor. Given that GSS will be used over time by real world groups, it needs to be studied over time.

The paucity of field based research needs to be addressed. Whilst student subject studies have their place in GSS research, they should not be the dominant source of GSS knowledge. Increasingly, real world GSS users will require knowledge that guides action in real world situations. If GSS researchers do not go out into the field then it is unlikely that the user community will take much notice of the research community.

The recommendations for further research described in the previous sections are summarised in Table 8.7.

Table 8.7 Recommendations for further research

- Examine other contexts to further determine the nature of familiarisation and the nature of confusion
 - Study participants over a longer period of GSS use
 - Investigate group interactions following a GSS intervention
 - Research whether facilitators undergo familiarisation processes
 - Investigate software based support for facilitators undertaking process design
 - Investigate the nature of participation (written, verbal, non-verbal), whether even participation is desirable and/or achievable, and how group history, skill levels, facilitation and technology influence patterns of participation;
 - Increase use of longitudinal designs in experimental research to account for effects of familiarisation
 - Consider the effects of familiarisation in repeated measures designs
 - Investigate the nature of learning during GSS activities and following GSS activities
 - Undertake more field based research
 - Undertake more interpretivist based research
-

8.5. Conclusion

The study has identified a process of familiarisation that takes place in the course of the first two occasions of GSS experience. The process has been modelled from the participant viewpoint as a reconstruction from a foreign environment to a familiar environment. The dimensions of this model include roles, people, process, task, and technology. As participants experience GSS, initial feelings of fear and nervousness are replaced by feelings of comfort and confidence. Improved participation can occur.

Additionally, a process of confusion has been described. In spite of familiarisation having taken place, participants can become confused when confronted with a difficult task and experiencing facilitator-led changes in process, along with their own preconceptions. Confusion can breed further confusion, particularly through the activities of an actor - the farrago. The consequences of confusion are perceptions of a lack of achievement and negative feelings including frustration.

The success of the interpretivist approach has been demonstrated. Findings representing the participant viewpoint are ground in a GSS experience and are relevant to GSS practice and research. The rigour of the research process has been demonstrated through the framework of Guba and Lincoln's work on the interpretivist paradigm including the trustworthiness criteria - credibility, transferability, confirmability and dependability.

Through the concern with the actor's perspective, and a concern with meaning, interpretivist approaches provide a process for treating GSS as a socio-technical system, and making GSS research more relevant to practice. In order to improve our understanding of GSS, it is time to educate IS researchers in paradigms other than the traditional paradigm.

Appendices

Appendix A Chronology of Events

The following is a chronology of events in 1993 from initial contact with client sponsor, through to the last meeting. It includes session and interview dates. References to interview transcripts are provided (see Appendix D).

- | | |
|---------|---|
| June 4 | Stan attended management course, Darryl offered planning opportunity |
| June 16 | Researcher phoned Stan |
| June 17 | Researcher met Stan, outline of Stan's issue, outline of research |
| June 22 | Researcher met Stan - research meeting, showed research contract, gained verbal agreement to conditions |
| June 23 | Researcher, Stan and Darryl met for facilitation briefing meeting. This is recorded on transcript "fac". Researcher provided information for participants about research and process. Also provided Stan with scheduling information. Research contract in process with Curtin University |
| July 1 | Interviews began, kg1, lf1, jt1 |
| July 2 | Interviews ctd., te1, sb1 |
| July 5 | Interviews ctd., by1 |
| July 9 | Session one held. In the morning Peter rang, said he could not make the first session as he was on paternity leave. I did not push the issue and he says he would make the second session. I encouraged him to ring Stan. |
| July 12 | Interviews, kg2, by2, sb2, lf2, jt2 |
| July 13 | Session two held. Interview te2 in morning before session, interview pm1 before session |
| July 14 | Interviews, kg3, by3, pm2, lf3, jt3 |
| July 15 | Interviews ctd., sb3, te3 |
| July 15 | Session three held. Interview by4 after session, as he is on long service leave the next day. |
| July 16 | Interviews, kg4, pm3 |
| July 19 | Interviews ctd., te4, sb4, lf4, jt4 |
| July 20 | Session four held. |
| July 21 | Interviews, kg5, lf5 |
| July 22 | Interviews ctd., te5, pm4, sb5, jt5 |

July 27 Session five held.

July 28 Interviews, kg6, pm5, sb6

July 29 Interview, dl

July 30 Interviews te6, jt6, lf6

Aug 18 Post GSS meeting (not taped). Darryl, researcher, and Stan met, report was presented, half hour meeting covered some implementation issues. Stan says he feels more settled, comfortable about the whole thing compared with his thoughts expressed in the final interview sb6, asks if he can ring for advice if necessary

Appendix B Research Contract

RESEARCH CONTRACT (COPY ONLY)

PARTIES

Researcher

The researcher is Mr Doug Atkinson, a PhD student in the Curtin Business School. His supervisor is Assoc Prof Peter Marshall and his associate supervisor is Assoc Prof Alma Whiteley. Both are from Curtin Business School.

Client

The client is a group from an organisation invited to participate in strategic planning sessions undertaken by the SPD unit and researched by the researcher. In this instance the client is Curlew City Council. The client sponsor is Mr SB, Manager of Parks and Reserves.

ACTIVITY

The proposed program of activities will involve the commitment of a facilitation team (Mr DL (facilitator) and Ms DO (analyst)) to engage in pre session planning and five half day sessions with the client at the MeetingWorks Facility at Curtin University.

During this process the researcher will be observing the proceedings and will also be interviewing client personnel to provide data for a research project.

TERMS OF REFERENCE

The client agrees to the following;

- (1) Commitment of a group (less than 10) to 5 half day sessions at the MeetingWorks facility at Curtin. The 5 sessions are tentatively scheduled for Tuesdays 6,13,20,27 July and 3 Aug.

- (2) Payment of a fee according to the following budget.

Budget

The client will receive a discount on the normal consultancy fee (\$1400 per session) in return for the research access.

A fee of \$1243 will be charged and invoiced via the SPD unit with payment within 30 days of the last session.

This fee is detailed as follows:

Analyst fee at (\$200 per session)	1000
Morning tea (\$12 per session)	70
Report writing	60

Sub total	1130
10% overhead to University	113

Total	\$1243

- (3) Researcher access in terms of;
- (a) Observation by the researcher at sessions.
 - (b) Videotaping of sessions.
 - (c) Interviews with individual participants.
 These interviews will involve 7 hours total commitment for each individual. They will most likely be held during work hours at the client site. They will be scheduled via arrangement between researcher and individual taking into account organisational commitments. The interviews will be recorded (audio) and transcribed.
- (4) Publication of information collected, in the PhD thesis and other research publications including journals. This will be conducted according to "confidentiality" described in (5) below.

The researcher agrees to maintain;

(5) Confidentiality

- (a) Individuals will not be identified by name in any public communication.
- (b) Permission to use the name of the organisation in any public communication will be requested prior to use.
- (c) Supervisor/associate supervisor/examiners
The researcher may be required to show detail of data eg videotapes, interview transcripts, documents to these people.
- (d) Public access to thesis document
The thesis document will be published by the University, copies of which will be available to the public via the library.

The SPD Unit agrees to provide;

- (6) A professional service to the client in strategic planning.
- (7) A written report of the process and outcomes at the culmination of the five sessions.

Signed

XXXX
Director SPD Unit

Signed

XXXX
Manager Parks and Reserves
City of Curlew

Signed

Grants and Contracts Office
Curtin University of Technology

Signed

Doug Atkinson
Researcher (PhD student)

Appendix C Documentation Provided for Participants Prior to GSS Sessions

The participants received two documents prior to attending the sessions at Curtin. One concerned the process and the other concerned the research. Copies of the documents follow.

Parks and Reserves: Planning for the Future
Information for Participants: About the Process

22 June 93

From: Doug Atkinson SPD Unit

Dear Participant,

On behalf of the Strategic Planning and Decisions Unit (SPD) at Curtin University we welcome your participation in planning for "Future directions and supporting structures for Parks and Reserves in the next 3 years". While details are being worked through, I present the following as an overview of the process that you are choosing to engage in.

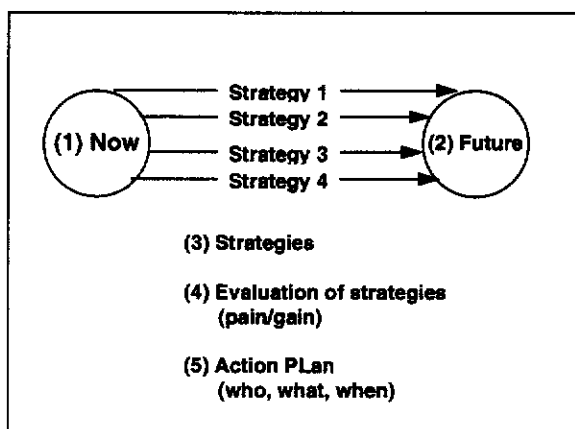
I look forward to meeting you in due course.

Five half day sessions are being organised where you are invited to a planning facility at Curtin. The planning process is designed to be participative and democratic, in the sense that the individuals of the group involved will be given equal opportunity to express their opinions and input their knowledge. The process will be assisted by some technology and a facilitation team of two people (Mr DL (facilitator) and Ms DO (analyst/chauffeur). The combination of technology and facilitation will enable your views to be expressed in a supportive, non threatening environment.

It is important for the process and outcomes that you commit yourself for all five sessions.

An overview of the five sessions (each 3.5 hours) is as follows. The figure below illustrates the (1) Now (2) Future (3) Strategies (4) Choice amongst strategies and (5) Action Plan.

Figure 1: A five step strategic planning process



Session (1) Now situation (Present state)

Group undertakes a situational audit eg SWOT (strength, weaknesses, opportunities and threats) for their organisation.

What do you think are the strengths /weaknesses /opportunities /threats in the next 3 years for Parks and Reserves?

idea generation, discussion and organisation, evaluation

(private brainstorm, public discussion and organisation, private evaluation followed by public discussion)

(Brainstorm, Discuss/Organise, Rate)

Session (2) Future

Group creates their shared desired future, for a given time frame, focussing on goals and objectives. This desired future is mediated by future needs or requirements.

Where would you like to see Parks and Reserves in the next 3 years?

What do you think are the future needs/requirements in the next 3 years for Parks and Reserves?

idea generation, discussion and organisation, evaluation

(private brainstorm, public discussion and organisation, private evaluation followed by public discussion)

(Brainstorm, Discuss/Organise, Rate)

Session (3) Strategies (How)

Group focuses on strategies in order to take the organisation from the present state in (1) to the future in (2). Reference is made to building on the strengths to take up the opportunities and mitigating the weaknesses to overcome the threats.

How can Parks and Reserves go from the current situation in (1) to the Future in (2)?

idea generation, discussion and organisation

(private brainstorm, public discussion and organisation)

(Brainstorm, Discuss/Organise)

(half day session)

Session (4) Evaluation of strategies

(note that this session may extend over two sessions)

Rather than a simple vote on the strategies of (3), a more detailed investigation is carried out. This form of evaluation involves looking at the pros ("benefits") and cons ("costs") across all strategies. Eg some strategies may be desirable in say providing "staff autonomy" (a "benefit") whereas other strategies may be desirable in terms of minimising a "cost" such as "less interesting work". Naturally with a group representing different interests they will see a variety of criteria as being important when evaluating the strategies. These criteria are the first stage of evaluation (a). The second stage (b) looks at each strategy with respect to each criteria.

Session (4) Evaluation of strategies (ctd.)

(a) Criteria to distinguish strategies

generation, discussion and organisation of criteria followed by evaluation ie weighting of criteria

(b) Evaluation of strategies with respect to criteria

Review of strategy evaluation ie summarise, analyse, manipulate and possibly re-rate.

Session (5) Action Plan

Group focuses on generating who, what and when relevant to operational implementation of the preferred strategy or strategies. Relevant time frames are considered eg next few months, six months, one year, two years etc.

End of Document

Parks and Reserves: Planning for the Future
Information for Participants: About the Research

22 June 1993

From: Doug Atkinson, Curtin University, ph 351 7437 wk

Dear Participant

In conjunction with the planning sessions a **research project** is being undertaken. The researcher is myself, Doug Atkinson. I am a PhD student at the Curtin Business School. In contrast to Mr DL and Ms DO who will be facilitating your planning process, I am concerned with research. To this end I am somewhat reliant on your generosity, cooperation and commitment to help with what for me is a very important piece of work. Without your full commitment and cooperation the research will not be admissible as quality work.

I will outline below what I am asking of you, and will contact you in due course to seek your commitment and answer any questions. I look forward to meeting you.

Basically I am concerned with your "individual perceptions (opinions) about the planning sessions". Of great importance to me is to get these over time, i.e., over the course of the five planning sessions. If we miss any of these then again the quality of the research suffers.

There are no right or wrong answers, they are simply your perceptions.

Specifically I would like to conduct a series of interviews with you. These would be 1-1 and take a maximum of 1 hour on each occasion. Naturally I would arrange them to fit into your work timetable, or even after-hours if you prefer.

The interview schedule would include seven interviews in total. When we have firm dates and times for the sessions I will contact you.

Interview one

To be conducted prior to you coming to Curtin for the planning sessions (possibly 1, 2, 5 July). Objective: To discover your perceptions of group decision making.

Interview two to Interview six

These will be held after each session. I would arrange to meet you on the day following the session or the one after. Objective: To gather your perceptions of that particular session. It is important that we don't miss an interview or leave it more than say two days after a session.

Confidentiality

All the interviews will be treated in confidence. The interviews will be recorded and transcribed as raw data for my research. These transcriptions will not refer to you by name. Further any publications resulting from the data analysis will not include your names.

Sessions

At the planning sessions held at Curtin, I will observe the planning process and will be seated at the back of the room. Furthermore the session will be videotaped. Again this is only for my research and will not be disseminated publicly.

I look forward to meeting you soon and will be happy to answer any questions you have. I will be away 24 -30 June so will likely contact you on the 1st July.

Yours sincerely

Doug Atkinson
PhD Student
Curtin Business School

Appendix D Electronic Data Files Description

The interview transcript data is held on 41 files totalling 1.6 megabytes. This is 1.6 million characters, about 160,000 words or around 600 A4 pages of text.

There are several versions of the files representing successive "cleaning" and "checking" from the electronic files provided by the transcriber. This processing was undertaken according to the rules of transcription provided in Appendix E.

The latest versions are ASCII text files suitable for introduction to the software NUDIST. Each transcript has been checked against audio tape for accuracy of transcription. All names have been changed to pseudonyms in order to maintain confidentiality.

The files are named so as to represent the interviewee and the time of the interview, that is 1 = pre-GSS, 2 = post GSS session one, 3 = post GSS session two, ..., 6 = post GSS session five. The 41 files are made up of 39 interviews with participants, one interview held with the facilitator, and one recording of the pre-GSS briefing meeting.

Participant Interview files

TE1,2,3,4,5,6	(Terry)
KG1,2,3,4,5,6	(Ken)
SB1,2,3,4,5,6	(Stan)
JT1,2,3,4,5,6	(Jackie)
LF1,2,3,4,5,6	(Liam)
PM1,2,3,4,5	(Peter)
BY1,2,3,4	(Brian)

Note that Peter was absent for GSS session one because of paternity leave. The numbering here is 1 = pre-GSS, 2 = post session two, 3 = post session three...5 = post session five.

Note that Brian was absent for GSS sessions five and six on long service leave.

Other files

DL (Darryl - facilitator interview)
FAC (Pre-GSS briefing meeting)

"DL" is a transcript of an interview held with the facilitator, Darryl, post session five.

"FAC" is a transcript of the pre-GSS briefing meeting between the client sponsor Stan, the facilitator Darryl, and the researcher.

Appendix E Auditing of Transcripts

To enhance the trustworthiness of the research an auditing process was undertaken with respect to the transcripts. This process included two auditors and an auditor coordinator.

A random sample of two of the 41 transcripts was chosen by the auditor coordinator using a table of random numbers. Complete transcripts were chosen as the sampling unit rather than subsets of the transcript so that consistency throughout a transcription could be assessed. The sample size was a compromise between representativeness and constraints on auditing time. Auditing a single transcript was approximately two hours work.

The researcher provided the transcripts, the audio tapes and a letter to the auditors, to the coordinator. After two weeks, the auditor provided a report along with the returned transcripts. The report results included the statement "a positive signal can be sent for this test and the research can be considered as reliable within the rules and parameters laid down".

The auditing documentation is provided below and consisted of 1) a letter to the auditors, 2) a report from the audit coordinator, and 3) a report on the rating system from one of the auditors.

The report on the rating system indicated, that for one auditor, the qualitative scale, i.e. poor/fair/good/excellent, needed some refinement and additional definition. In his view "excellent" would mean "faultless". Given that he found some "minor alterations", he did not feel comfortable about an "excellent" rating. However, the next point on the scale - "good", was felt to be too low. Thus he suggested a "very good" category that would mean "minor alterations are necessary".

Given that the rating process included pencilled corrections on the transcripts, in addition to the qualitative ratings, it was possible to construct a quantitative rating to indicate the quality of the transcripts. This was done by using the number of text units defined in the Nudist software as the population size, and then counting the number and types of errors found by the auditors.

Error rates relating to the most important rule (see Table 4.3 following), rule 10 "decipherable speech of interviewer and interviewee" were less than 2% (1.4%, .5%, 1% and 2%) and were generally of a trivial nature. This then provided objective support for the qualitative ratings of "excellent" and "very good", and the auditing coordinator's signal that the data was reliable.

1) Letter to the auditors

To Auditors of Transcript
September 23, 1994

Dear Auditor,

Thankyou for agreeing to audit a sample of the transcripts that form the data of this PhD research.

The time commitment for the auditing of these transcripts will be about 2 hours.

It would be appreciated if you can complete the auditing within two weeks.

You are provided with two audio tapes and two hard copy transcripts.

On the audio tape you will hear the conversation between an interviewer called "DA" and an interviewee designated by another pair of initials. The interviews occur after a session called a "GSS session" where the interviewee was a participant. The interviewer DA is asking the interviewee questions relating to the participant's experience of the GSS session.

The transcripts are a hard copy symbolic representation of the conversation heard on the audio tape.

Please check the transcript against the audio tape with reference to the "Rules of transcription" (following).

- 1) Indicate in pencil on the transcript each place where you feel the rules have been contravened and which rule has been contravened eg "rule 7". Provide a reason if you feel it is necessary.
- 2) Indicate the statement that would best describe your opinion of the **quality** of each transcript in relation to supporting the objective of the transcription and obeying the stated rules of the transcription?

Quality of Transcript 1	Quality of Transcript 2
poor	poor
fair	fair
good	good
excellent	excellent

Thankyou for contributing your time to this research.

Please return the provided materials to Ms Alma Whiteley, Graduate School of Business, GPO Box 1987U, Perth, 6001.

Transcription

Note: Transcription refers to the process of a person listening to an audio tape of an interview between the researcher and a participant, and representing an interpretation of the sound on the audio tape in typed English text known as the "transcript".

The objective

Within this research the transcript is to act as a primary form of data for inferring participant perceptions of the GSS experience. The concern of the researcher is ultimately with the meaning that a participant associates with their experience of the GSS sessions.

Thus the transcript as a primary data source should serve as an indicator of the meaning that the GSS experience had for a participant.

Table 4.3 Rules of transcription

What is not transcribed:

-
- 1 the pitch of speech
 - 2 the intonation
 - 3 laughter
 - 4 anything to do with the temporal nature of speech beyond the sequence of speakers and sequence of speech (e.g. pauses, speed of speech);
 - 5 acknowledgments such as "yeah", "right", and "mm", from the second speaker (usually the interviewer) which take place repeatedly during a person's speech, and where the transcription of such would break up the flow of speech;
 - 6 utterances such as "ah", "oh", "um", and "er", or partial utterances of words;
 - 7 the sections where two people speak at once, and the speech is indecipherable;
 - 8 repetition of words when clearly the one thing is intended but the speaker is using the repetition as a form of pausing;
 - 9 slang such as "gonna" is transcribed as "going to".

What is transcribed:

- 10 the decipherable speech of interviewer and interviewee, excluding aspects above;
 - 11 initials to indicate the speaker, for example, "* DA" indicates the interviewer, the researcher Doug Atkinson; "* KG1" would indicate a participant or interviewee;
 - 12 "yeah" and "yes" are used interchangeably
 - 13 "... " is used to indicate indecipherable pieces of speech. These may be of varying length but almost all would be less than four words, usually one or two;
 - 14 the sequence of speakers is indicated, however, when two people speak at once and the words of the speech is decipherable, an arbitrary sequence choice is made;
 - 15 references to names of other people are indicated by initials
 - 16 punctuation including full stops, commas, sentence structure and question marks is subjective and was placed by the original transcriber.
-

End of Rules of Transcription

End of Document

2) Report from audit coordinator

9th October 1994

Auditor Coordination

Researcher: D Atkinson

Research Title: A study of perceptions of individual participants of a client group undertaking a series of meetings supported by a GSS

Method

Two sets of material were delivered to the research coordinator. Each set was sent to a rater who was not notified of whose the research was. Each rater must have the following qualities; 1. Have a proven record in qualitative research. 2. Have experience in transcripts and content analysis 3. Be unknown as the rater to anyone but the coordinator until rating was finished. 4. Each rater be unknown to the other rater as a rater on this research.

The two raters' ratings were presented and they were both above the "fair" category. One was "excellent". The other was "good". A verbal debriefing with the "good" rater revealed that had there been a category of "very good" this would have been given.

On this basis a positive signal can be sent for this test and the research can be considered as reliable within the rules and parameters laid down.

A Whiteley
Associate Supervisor

End of Document

Appendix F Interview Instruments and Prior Codes

The interview instruments consisted of a series of semi-structured questions. A distinction was made between the first interview "Interview One: Perceptions of some constructs prior to GSS" which was held prior to GSS session experience, and later interviews that were undertaken post each GSS session, for example, "Interview Two: Post session one".

The interview questions are provided below. Included with each question is a code shown in single quotes.

Note the hierarchical coding system of the software Nudist was used to reflect commonalities and/or differences amongst the codes. Codes that were common to the interviews two through to six were coded under 'int2to6'. Codes that were specific to interviews were coded under 'int1', 'int2', 'int3', 'int4', 'int5' and 'int6' respectively.

The question and response would be included in the code. Follow-up questions and responses that were associated with the original question or response were also included. Whole speech units (a section associated with one speaker) were included, so that the coded units erred on the side of providing greater rather than lesser context for interpreting meaning during later retrievals. This would result in overlap of text units between codes that referenced contiguous speech. Where responses and follow-up questions became less clearly associated with original interview questions they were still coded with the first code, until the question was clearly associated with a subsequent code. Thus the "prior" coding of the interview codes was exhaustive of the text units. The codes were not mutually exclusive of the text units because of the coding of speech units as stated before, in order to provide a fuller context.

The overall objective of the prior coding was to allow retrievals and comparisons both cross-sectionally (between participants at the same time) and longitudinally (between times for the same participant) based on the structure of the interviews.

Interview one: Perceptions of some constructs prior to GSS

To be held prior to first session Tue 3pm 5 July

Introduce myself, get them comfortable, sort out micro cassette recorder

Timing 10 mins for q1, 5 mins each for remaining questions, approx 1 hour total

Note the Nudist codes indicated in single quotes were located beneath a code 'prior/int1' to indicate that they were formed from the response to prior questions asked by the researcher and they belong to interview one.

- 1) Demographic info (10 mins max)
 - a) Position 'demo/posi'
 - b) Who do you report to? 'demo/rept'
 - c) Who reports to you? 'demo/rept'
 - d) Responsibilities 'demo/resp'
 - e) Work experience (years) 'demo/wexp'
 - f) Time at CC (years) 'demo/ccyr'
 - g) How well do you know other group members? (show list) 'demo/fami'

- 2) Perceptions of individual participants of group decision making at face to face meetings, prior to any GSS session experience.
 - a) What does group decision making (GDM) mean to you? 'gdm'
 - i) In what form does GDM take place in your work experience? 'gdm'
 - ii) What's your personal experience of GDM? 'gdm'
 - iii) What's good about group decision making? 'gdm'
eg Give an example
 - iv) What can be bad about group decision making? 'gdm'
eg Give an example

 - b) What does meetings mean to you? 'meet'
 - i) In what form do meetings take place in your work experience? 'meet'
 - ii) What's your personal experience of meetings? 'meet'

- iii) What's good about meetings? 'meet'
eg Give an example
 - iv) What can be bad about meetings? 'meet'
eg Give an example
 - v) What are your thoughts about this graphic? (show graphic of meeting situation; see Figure 6.2. Graphic of meeting situation.) 'meet/grap'
- c) What does (strategic) planning mean to you? 'plan'
- i) In what form does planning take place in your work experience? 'plan'
 - ii) What's your personal experience of planning? 'plan'
 - iii) What are some positive aspects about planning? 'plan'
 - iv) What are some negative aspects about planning? 'plan'
- d) What does the term facilitator/s mean to you? 'faci'
- i) What is your personal experience of facilitators? 'faci'
 - ii) What makes a good facilitator? 'faci'
 - iii) What makes a poor facilitator? 'faci'
- e) What does the term chairperson mean to you? 'chair'
- i) What is your personal experience of chairpersons? 'chair'
 - ii) What makes a good chairperson? 'chair'
 - iii) What makes a poor chairperson? 'chair'
- f) What does the term consultants mean to you? 'cons'
- i) What is your personal experience of consultants? 'cons'
 - ii) What makes a good consultant? 'cons'
 - iii) What makes a poor consultant? 'cons'
- g) What does computers and computer technology mean to you?
'tech/comp'
- i) What is your personal experience of computers? 'tech/comp'
 - ii) What are some positive aspects about computers? 'tech/comp'
 - iii) What are some negative aspects about computers? 'tech/comp'

- h) What are your expectations for the coming planning sessions? 'expe'
- i) Picture yourself at the end of the sessions....
- i) What will have made it worthwhile? (personally) 'worth'
- ii) What will have made it not worthwhile? (personally) 'worth'

Supplementary questions for client sponsor Stan

- j) Why did you take on this contract arrangement? 'spon/cont'
- k) What's your experience of structured planning? 'spon/plan'
- l) What's your experience of GSS? 'spon/GSSe'

End of interview one

Interview Two: Post Session One: Perceptions of 1st GSS Experience

Note all questions were to be combined with interactive questioning;

- a) What do you mean?
 - b) What led to that?
 - c) What were the consequences of that?
 - d) Why?, When? How? Who?...
- 1) a) Best thing/s about the session? 'over'
 - b) Worst thing/s about the session? 'over'
- or What did you feel about the session overall? 'over'
- or What were the pluses/minuses/interesting points? 'over'
- 2) What do you feel could have been improved about the session? 'over'

- 3)
 - a) What was the same about this meeting compared to your normal monthly meetings? 'mmeet'
 - b) What was different about this meeting compared to your normal monthly meetings? 'mmeet'

- 4) What was the best things/worst things (or pluses/minuses) about the following?; or How do you feel about the following?;
 - a) Facilitator 'faci'
 - b) Chauffeur 'chau'
 - c) Process
 - i) Intro 'intr'
 - ii) Brainstorm 'brai'
 - iii) Discussion 'discorg'
 - iv) Organisation of ideas 'discorg'
 - v) Evaluation of Ideas 'eval'
 - vi) Refreshment Break 'brea'
 - vii) Ending 'end'
 - d) Technology 'tech'
 - i) The computers 'tech'
 - ii) The a/v display 'tech'
 - e) Group 'grou'
 - i) interactions 'grou'

- 5)
 - a) Do you feel this was a worthwhile use of your time? 'worth'
 - b) Do you feel this was a worthwhile use of your Department's time? 'worth'

- 6) Anything else you would like to add about the session? 'anyt'

- 7) Thank the participant. 'thanks'

End of Interview Two

Interviews Three/Four/Five/Six: Post GSS sessions Two/Three/Four/Five

These were carried out with similar format to Interview Two but with adaptation, particularly with regard to process in order to 'replay' the session to the participant. A prompt used to do this would include referral to the hard copy reports from a session. An extract of the hard copy reports appears in Appendix I "Report Extract: Parks and Reserves Dept, Planning for the Future". Additionally, any "incidents" noted by the researcher while observing the session would be used as a prompt. An example was Interview Four, the "Ken Incident" referring to the situation in session three when Ken stood up, went to the front of the room, took the whiteboard marker from the facilitator Darryl and began to talk to the group.

Furthermore, participants were questioned about the comparison of sessions.

- 8) a) What was the same about this session compared with the last/previous session/s? 'sesncf'
- b) What was different about this session compared with the last/previous session/s? 'sesncf'

Questions that were specific to the later interviews are provided under the headings below.

Interview Three

Questioning in Interview Three included a question concerning the following stage of session two.

The participants undertook a stage that involved producing a "Desired Future Statement". During this stage the participants did not use their workstations. Instead, the chauffeur displayed her workstation's screen, which was running a word processor. The facilitator had the chauffeur type in an initial starting statement that was based on incorporating the higher rating items from the previous evaluation of desired future items. The participants were then invited to adjust that initial statement. During the discussion that followed, the chauffeur worked to capture the

changing Desired Future Statement whilst the facilitator managed the discussion. The question follows.

- a) You then came up with a "Desired Future Statement". How did you feel about that? 'dfs' (also merged with 'int2to6/discorg')

Interview Four: Post session Three

Questioning in Interview Four included questions concerning the following stages of session three.

At the beginning of the session, which concerned determining strategies, the facilitator invited the manager Stan to publicly suggest some strategies to start with. Stan suggested two strategies which were initially recorded on a whiteboard. This process was quite different to the private anonymous brainstorming that had been held in the previous two sessions, and was later referred to by one of the participants as the "other way". Thus it was coded, 'other way'. The question follows.

- a) The facilitator invited Stan to suggest some strategies and he suggested two points that were put up on the board. How did you feel about that? 'other way'

After some further public discussion where two more strategies, Education and Promotion/marketing thrust, were publicly stated, the facilitator then reverted to a private brainstorm and asked the participants to add to the strategies. A brainstorm list of 20 ideas resulted. These were then discussed and organised. This process was referred to in the following question.

- b) What did you think about the process of coming up with the strategies? 'strats'

During the process of discussing and organising the strategies, Ken stood up went to the front of the room, took the whiteboard marker from the facilitator Darryl and began to talk to the group.

- c) What did you think of this? 'kgin'

Following this process, in which four major strategies were identified, the facilitator then led the participants into the multi-criteria decision making process. The participants undertook a private brainstorm of criteria to distinguish or choose amongst the strategies. The question follows.

- d) What did you think about the process of brainstorming the criteria? 'braic'

Following the production of the public list of criteria, the facilitator then ended the session.

Interview five: Post session four

Questioning in Interview five included questions concerning the following stages of session four.

- a) In the first part of the session the facilitator recapped on the strategies and people were invited to add to the strategy list. How did you feel about that? 'stratsrecap'
- b) You then revisited the criteria list and went through a discussion and organisation of the criteria. How did you feel about that? 'critdo'
- c) You then went into an evaluation or weighting of the criteria using a 100 point scale. How did you feel about that? 'critwt'
- d) Following the break you then undertook an evaluation process on the strategies, where you rated each strategy on each criteria. How did you feel about that? 'stratseval'
- e) Finally you briefly revisited the desired future statement. How did you feel about that? 'dfsrevisit'

Interview Six: Post session five

The final interview, Interview six, included several specific questions including a "value" question, a question about the researcher's presence in the organisation and then several questions aimed at getting a participant to reflect across all the five sessions.

- 9) How much would do you think an organisation should be prepared to pay for the process (all five sessions) that you have undertaken? 'pay'
- 10) How do you feel about the interviewing and my presence in your organisation as part of the research process?. 'rese'
- 11) How do you feel about the future of the process in your Department? 'futu'
- 12) How do you feel your perceptions have changed across the five sessions? 'chan'
- 13) Could you (the group) have got to where you are at now, any other way? 'way'
- 14) Is there anything that could have been left out? 'left'
- 15) Is there anything you felt could have been improved? 'impr'

Questioning in Interview Six in also reflected the following stages of session five.

- a) In the first part, following the introduction, you examined the weaknesses and threats, and brainstormed actions to deal with them. How did you feel about that? 'braia' (this code was also merged into 'int2to6/proc/brai')
- b) Following the break you considered the 11 dimensions of the rationalisation strategy, and then brainstormed an extra six dimensions. How did you feel about that? 'braid' (this code was also merged into 'int2to6/proc/brai')
- c) The facilitator then decided that a discussion and organisation of those dimensions was not necessary. You then began an evaluation of the 17

dimensions which was done in two lists. How did you feel about that? 'evald' (this code was also merged into 'int2to6/proc/eval')

- d) Following that evaluation, a subset of six dimensions was chosen and you discussed and organised steps in dealing with those dimensions. How did you feel about that? 'dorgd' (this code was also merged into 'int2to6/proc/discorg')

End of Interviews Three,Four,Five,Six

Appendix G Extract of Nudist Retrieval Interview One

The following is an extract of a Nudist based retrieval across the seven participants based on the first interview. Only the responses from three of the participants, Brian, Ken and Terry are shown, for the sake of brevity. The code for retrieval is "/prior/int1/tech/comp" which represents participant responses to questions concerning their views about computers and computer technology. The retrieval is in Nudist format. The transcripts are retrieved alphabetically and line numbers referencing the text units are indicated at the left hand margin.

Q.S.R. NUD-IST Power version, revision 3.0 GUI.
Licensee: Doug Atkinson.

PROJECT: PERCGSS, User Doug Atkinson, 10:25 am, Oct 5, 1994.

(1 1 8 1) /prior/int1/tech/comp

*** Definition:

Computers and comp tech mean, pexp, posi, negi?

+++++

+++ ON-LINE DOCUMENT: BY1

+++ Retrieval for this document: 81 units out of 835, = 9.7%

++ Text units 647-727:

647 * DA

648 Ok, yes. What does computers and computer technology

649 mean to you?

650 * BY1

651 Computers, technology. That has a place. Definitely

652 there's a place for it.

653 * DA

654 Where's the place and where's not the place?

655 * BY1

656 Where's not the place and where is the place

657 * BY1

658 I find they can't replace a person in the field but they can

659 help manage, facilitate, organise the rest of the system.

660 That make sense?

661 * DA

662 Yes.

663 * BY1

664 You know, from my point of view, from what I've seen of

665 them, the way I get, me not being the most organised

666 person in the world and has a filing cabinet that he keeps

667 emptying out and throwing things away which are useless

668 and filling it back up again find that a computer with

669 computer skills, organising your daily works is quite easy

670 especially dealing with contractors, looking at moneys,

671 where the moneys goes, where you're taking it from that -

672 type of facilitation, I think it really has got a place and we

673 really could function down here with that sort of system,

674 with a system like that but we have a controlled, an

675 irrigation system that's computerised, now

676 * DA

677 Is that what I see a bit of here?

678 * BY1

679 That's a bit of it here. It just feeds the printer.

680 * BY1

681 I mean, really we get information at 7 am of where there's

682 breaks from the night before, it's fantastic, you can't do

683 that without that. It's fantastic. But, of course, it's got

684 faults because it can't do things that we want it to do in the

685 field. I've only got this little example of course but I only,

686 I've got all sprinkler systems on a flush out, they just come

687 on throughout the night, once a week for 5 minutes per

688 station, just to give them a flush and out and make sure

689 they're still running and everything's fine. So I only want a

690 printout on a Thursday morning that I can check and

691 make sure everything's, but I can't change that unless we
692 get a new software programme otherwise that one gives
693 out a printout every day. I don't want to go through a tree
694 every day, just want one printout once a week. And of
695 course. So they're things, they're the negatives, those are
696 the things that you can't get that you should be able to get.
697 I'm sure you can get them. I'm positive you can get them.
698 I'm not educated enough to know where I can use a
699 computer in this system, in this environment, right here in
700 this office to make this parks department function. No
701 doubt there is, you know, I'm sure there is, don't ask me
702 what or how. What was the other part of that question?

703 * DA

704 Just your personal experience of computers

705 * BY1

706 Oh look only spending time at school learning to use
707 them, playing at home, that sort of thing.

708 * DA

709 So you've got a personal computer at home? Do you use it
710 for your kids or

711 * BY1

712 Oh the kids are on it all the time

713 * BY1

714 I go to school as well so I do assignments on it and my
715 wife does all of her budgeting and housekeeping on it its
716 just a toy...a helpful toy. To me it's a typewriter, to the kids
717 it's something that helps them do their homework and plus
718 it teaches them another subject at the same time, computer
719 skills. Like I say, I'm positive that they can be used in this
720 environment but don't ask me how or why.

721 * DA

722 So you're happy sort of keyboarding and

723 * BY1

724 Oh just apart from the lack of efficiency, yes. To me

725 they're just a toy, I've never warranted the fact is I'm a
726 gardener that's grown up to this sort of level so those sort
727 of things to me are new. When I get them I'm like

+++++

+++ ON-LINE DOCUMENT: JT1

+++ Retrieval for this document: 74 units out of 530, = 14%

++ Text units 407-480:

407 * DA

408 What do computers and computer technology mean to you.

409 * JT1

410 They're excellent tools for, yeah, they're excellent tools
411 for anything really but I just don't I only see them as tools.
412 They give a lot of job satisfaction to people to feel that
413 they're keeping up with technology but I don't think they
414 actually make things much easier unless you were
415 working with a lot of data manipulation I don't see them
416 as being hugely advantageous.

417 * DA

418 Do you use them personally on a day to day work basis.

419 * JT1

420 I did, I do but quite differently to what I was doing
421 before. Before when I was at CS I was doing
422 autoCAD drafting, so doing a lot of plans on computer
423 and collecting a lot of the base plan information and
424 having aerial surveys done and what have you. But now I
425 only use it for monitoring the computer irrigation system
426 and for just lists basically, just doing lists and
427 spreadsheets.

428 * DA

429 And so would you use it on a daily basis or

430 * JT1

431 Yes.

432 * DA

433 Do you have your own, is there a computer sitting on your

434 desk as such.

435 * JT1

436 No.

437 * DA

438 You use a shared resource.

439 * JT1

440 Yes.

441 * DA

442 What would you see about as positive and negative aspects
443 about computers.

444 * JT1

445 That depending on the user it can be an advantage or a
446 disadvantage to them. They can spend, in a, looking at it
447 from their organisations point of view and the offices that
448 are there, if you had a computer on each persons desk say,
449 some people would use it very efficiently and it would
450 probably broaden and, they would broaden their scope of
451 works and they would also neaten a lot of their work
452 practices which may be an advantage to people who are a
453 bit disorganised. But there are other people who would
454 just use it indiscriminately and therefore waste a lot of
455 time on it. I think that in the end that you end up
456 spending a lot more time on them that with things that
457 you could do, instead of just scribbling a note on a piece
458 of paper and handing it to somebody which is probably
459 plenty or doing a draft sketch of something, they actually
460 sit there for hours and hours getting this perfect drawing
461 that they have to change.

462 * DA

463 Yeah, okay. And then the printer doesn't work.

464 * JT1

465 Yes. It depends how you use it. I don't think the
466 computer improves peoples work practices, you have to
467 improve it yourself, but I just think it's just a probably a

468 bit of an avenue for you to facilitate improving your works
469 if you want to.

470 * DA

471 So would you say, would you call yourself a novice or an
472 expert in terms of using a, or are you, are you comfortable
473 with using a computer if you.

474 * JT1

475 No not really. Only with some things. If I had one at
476 home and I sort of got used to it and used to some of the
477 programs, there are quite a few programs here, I'd
478 probably feel quite comfortable about using it and I would
479 use it more to manipulate a lot of the information that's in
480 there.

+++++

+++ ON-LINE DOCUMENT: KG1

+++ Retrieval for this document: 74 units out of 965, = 7.7%

++ Text units 659-732:

659 * DA

660 Right, right. So as supporting, supporting evidence.
661 Right, ok. What do computers and computer technology
662 mean to you?

663 * KG1

664 Now you've come to something. Have you got 3 or 4
665 months to spare?

666 * DA

667 3 or 4 months? (Telephone interruption)

668 * KG1

669 Yes, no, I I don't like computers. So that answers your
670 question. I increasingly believe people run this world not
671 computers. Computers only make work. You know, I was
672 told 7 years ago here we would have a paperless office,
673 because we were going fully computerised, we now have
674 more paper

675 * DA

676 That's a very common experience.

677 * KG1

678 than ever. No matter what they do, they can't get rid of
679 that. It is that simple. That every computer you have, you
680 must have more forms and that again is something that
681 does not do any work, it only makes work. A form is a 4
682 letter word, and I'm not allowed to use them. Forms only
683 make work, they don't do any work. Yes ... computers and
684 as far as I'm personally concerned, computers have got 1
685 big plus and that is retrieving information, that is their big
686 thing but to have computers do this that and the odd thing,
687 I personally believe it's people that make this world go
688 round, not computers.

689 * DA

690 What's your personal experience here in the office, I don't
691 see any computers

692 * KG1

693 Well there's one computer here which gives us a read out
694 every morning on retic.

695 * DA

696 On what, sorry?

697 * KG1

698 Reticulation or retic. We have a computerised retic
699 system, or partially computerised and my own personal
700 opinion on that is it's about as useful as tits on a bull.
701 That's simple basica.

702 * DA

703 That's just, do you input anything on that or

704 * KG1

705 No, it's just in the top office, the whole thing's up the top.
706 It just comes through.

707 * DA

708 You just get a report
709 * KG1
710 yes
711 * DA
712 and you find out basically
713 * KG1
714 I mean, if we want it changed, well it tells too many fibs.
715 * DA
716 So it doesn't relate to what's really going on?
717 * KG1
718 Not properly as far as I'm concerned, no.
719 * DA
720 So it's not useful.
721 * KG1
722 Half and half.
723 * DA
724 Right, right limited usefulness. Ok. Do you use
725 computers at all at home?
726 * KG1
727 No.
728 * DA
729 Kids or education or anything?
730 * KG1
731 My kids. Oh Christ. It was my daughter's birthday
732 yesterday, she was 33. I'm in the better part of life.
+++++

+++ ON-LINE DOCUMENT: TE1

+++ Retrieval for this document: 71 units out of 694, = 10%

++ Text units 576-646:

576 * DA

577 Ok, what does computers and computer technology mean
578 to you?

579 * TE1

580 I think it's a field that I'm lacking in in that I certainly
581 have had no hands-on use of computers in the last 4 or 5
582 years and, as you'll probably find over the next few weeks,
583 we'll have a couple of us will have problems even in
584 starting the computer up and typing whatever in it is you
585 require typed in because we don't have hands-on use in our
586 situation as supervisors. I think all businesses, including
587 ours are going to need to use them a lot more. I would
588 like to be able, be more confident in using computers. I
589 feel lost when I go into our office and see the technical
590 officers clicking away at them and they're using them
591 regularly and being able to pull data out that I require, I'm
592 not capable of pulling the data out that I need at times and
593 I have to go to someone else to get it for me. That
594 frustrates me. I can see it's not convenient for me to have
595 a computer sitting on my desk, both for economics and I
596 don't need to use them all the time, but I would like to
597 know how to get that data back out for my own use. I'm
598 intimidated by them at times because I haven't used one
599 for so long. Then you feel inadequate because you, as
600 quite a senior staff member, are going in having to ask for
601 help all the time to get that data back out. All of our
602 reticulation is becoming computerised, some of us are
603 familiar with that some of us aren't, I'm not, I would like
604 to be. I, I'm,

605 * TE1 MICRO 1/4/A

606

607 * TE1

608 we're goin to have to use computers more as time goes on.
609 I can see that. I want to be able to use them. I think we
610 need to be able to use them to carry out our day-to-day jobs
611 efficiently. And I don't see that you any problems with it,
612 I don't feel that they're going to do me out of a job or in

613 anything else, I see them as a tool that can do my job
 614 better but at present I'm not capable of using them to do
 615 my job better. Or to just make me feel more part of an
 616 overall team where other people may be able to do my job
 617 but I can't get back into that area, I'd like to learn to.

618 * DA

619 So you're saying you had some use of computers 4 or 5
 620 years ago?

621 * TE1

622 In my previous job, which was a management job, I used
 623 to use computers quite a lot, particularly for working out
 624 targeting, pricing and all sorts of other things but I'm
 625 surprised myself in how much I've forgotten in say 5 years
 626 of not touching computers. You know, I haven't touched a
 627 keyboard in that time and I would need a very good
 628 refresher course to get me back to being really computer
 629 literate again. My grandsons can handle a computer much
 630 better than I can because in schools these days they're
 631 using them all the time, and unless we have regular hands-
 632 on, there's not a lot to be gained by say, putting you
 633 through a quick course, it needs to be a keyboard around
 634 where we can pull some of the data out, not necessarily
 635 input because that can confuse the system if you're not
 636 very literate but I would like to be able to pull information
 637 out on budgets and pumps and bores and things that we
 638 may just want to look up for our own retic fitters here
 639 rather than having to go somewhere else but I've forgotten
 640 an awful lot in 5 years because I think, mainly because I've
 641 taken on a new job, have to absorb a lot of new
 642 information and it's very easy to forget and the computer
 643 technology's also changed quite a lot in that time too. The
 644 computer I used to use was quite basic. Some of the stuff
 645 they've got up here in their office is far in advance of what
 646 I used to use.

+++++

+++ Total number of text units retrieved = 505

+++ Retrievals in 7 out of 41 documents, = 17%.

+++ The documents with retrievals have a total of 5320 text units,
 so text units retrieved in these documents = 9.5%.

+++ All documents have a total of 32727 text units,
 so text units found in these documents = 1.5%.

Appendix H Auditing of Prior Coding

To Auditors of Prior Coding

Dear Auditor,

Thankyou for agreeing to audit a sample of the coding of the transcripts that form the data of this PhD research.

The time commitment for this auditing will be about 1 hour.

It would be appreciated if you can complete the auditing within two weeks.

You are provided with two hard copy transcripts and a reference document.

On the transcript you can read the conversation between an interviewer called "DA" and an interviewee designated by another pair of initials. The interviews occur after a session called a "GSS session" where the interviewee was a participant. The interviewer DA is asking the interviewee questions relating to the participant's experience of the GSS session.

You are asked to code each of the transcripts according to the "Rules of coding" given below.

Thankyou for contributing your time to this research.

Please return the provided materials to Ms Alma Whiteley, Graduate School of Business, GPO Box 1987U, Perth, 6001.

Rules of coding

Refer to the reference document "Interview instruments and prior codes" (*Researcher note: This was a copy of Appendix F*). This document contains the interview structure and the codes after each question, in single quotes. A description of how to choose the code follows.

Each interview is referenced in the document. If for example you have transcript "LF4" then you would refer to "Interview 4" as well as "Interview 2" because the latter's structure was partly used in interviews 2 through to 6. As a specific example the question and responses concerning question 1 and 2, "the session overall" would be coded as 'over'.

- 1) Look at the text of the interviewer "DA".
- 2) Choose a code from the document that best represents the interviewer's speech.
- 3) Record the code and then the text unit number of the unit "* DA" that begins this speech. (ie use the speaker text unit as the start of the code).
- 4) Continue reading the transcript until you clearly strike a question by DA that is referred to in the reference document. Record the text unit number directly preceding the unit "* DA". This number text unit is the end of the code.
- 5) Repeat the process 1 to 4, to determine the next code and its starting and ending codes.

At the finish you should have a list of codes with their text unit range all recorded on the transcript. For example, " 'over' 1-52" would be one such record. You should find that the codes given will exhaust all text units on the transcript, as steps 3 and 4 mean that you "continue" a code until you clearly strike a question in the reference document. Intervening questions and responses not in the reference document will be contained in the code.

End of Rules

End of Document

Results of code auditing

Two transcripts were coded by each of two auditors. These were compared with the researcher's coding.

Transcript 1 was approximately 400 text units and contained 16 researcher codes. For 12 of the 16 codes, the coders were unanimous on code name and starting and ending line numbers. There were four codes where the coding was not unanimous, however, there was agreement between one auditor and the researcher. Two of these were the result of a minor oversight by an auditor as to the end and start of a code. One was a code missed by one auditor. In one case, an auditor offered two possibilities for the name of the code, one of which was in common with the other two coders. None of the disagreements warranted a change in the researcher's coding.

Transcript 2 was approximately 1000 text units and contained 14 researcher codes. For 12 of the 14 codes, the coders were unanimous on code name and starting and ending line numbers. There were two codes where there was disagreement amongst the three coders. One auditor had made a mistake on the ending line number for one code thus contributing to two discrepancies between their ranges and those of the researcher. The other auditor considered that questioning had changed from concern about the chauffeur to concern about the facilitator. The researcher felt that the speech described both facilitator and chauffeur and hence the questionable speech was coded under each. Thus there was one disagreement that warranted a change in the researcher's coding and this was minor rather than major.

Overall then, the auditing of the two transcripts revealed that the researcher's coding was confirmable by independent auditors and had a high degree of trustworthiness.

Appendix I Report Extract: Parks and Reserves Dept. Planning for the Future

The following is an extract of the report provided to the manager following the five GSS sessions at Curtin. The extract includes the summary, contents pages and the report (essentially the MeetingWorks record) of the first of the five sessions. Graphics of rating distributions were not stored electronically, only on hard copy, hence they do not appear.

Summary

The Parks and Reserves Department (PRD) undertook a series of sessions at Curtin University in July 1993 designed with the objective of determining strategic direction in the next 3 years.

A management team of seven, Stan (Manager of Parks and Reserves), Peter (Coordinator of Parks and Reserves), Jackie (Senior Technical Officer), Liam (Horticultural Officer), Brian (Senior Supervisor), Ken (Supervisor) and Terry (Supervisor), participated in the planning sessions.

The process consisted of 5 sessions, facilitated by Darryl and Dianne of the Strategic Planning and Decisions (SPD) Unit. The process utilised a computer based meeting technology, MeetingWorks.

In session one, the team identified their present situation in terms of strengths, weaknesses, opportunities and threats (SWOT).

In session two, the team identified the desired future for the PRD in 3 years time. This resulted in a Desired Future Statement.

In session three, the team identified four strategic thrusts that would take the Department from the current situation to the desired future. These were Rationalisation, Subcontracting, Education and Training, and Profile.

In session four, the team evaluated these strategies with respect to identified criteria including, budget support, budget requirement, ease of implementation, job satisfaction, contribution to dept/organisational goals, quality of the product and innovation.

Rationalisation was seen as the dominant strategy followed by Subcontracting, with Education and Training, and Profile viewed equally but subordinate.

The team felt that all strategies were important and should be supported, however, Rationalisation was seen as the major focus.

In session five, the team began the process of forming an Action Plan. The team identified actions to neutralise weaknesses and threats identified in session one. The team also examined the Rationalisation strategy. Activities were identified relating to six of the major dimensions of the rationalisation strategy.

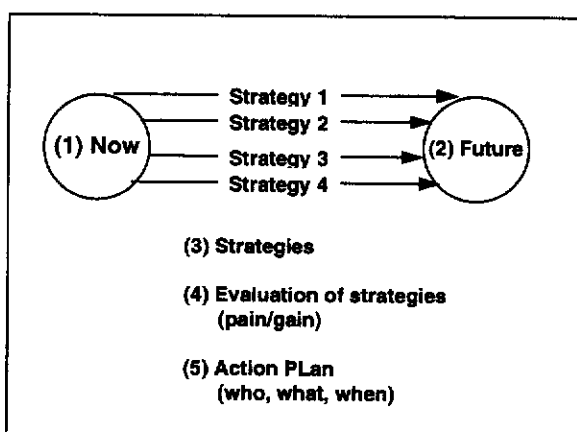
The Action Plan was incomplete in the sense that only actions for some of the dimensions of one strategy were identified, ie limited identification of the What?. A process would thus need to continue within the PRD to deal with all dimensions. Additionally there was no identification of Who? and When?.

Overall the management team of Parks and Reserves noted that the planning sessions were the beginning of a process that would involve work over the next three years.

Layout of this Report

This Report is laid out in the order of the sessions, session 1 through to session 5. The five sessions are displayed diagrammatically in figure 1 below.

Figure 1: A five step strategic planning process



The report consists of the print-outs from each session. These print-outs were generated in the course of the sessions via the MeetingWorks system. These are numbered at the bottom of the page, eg 1.1 through to 1.14 are the print-outs from session 1.

The contents following provides an index to the print-outs.

Contents

Session 1	The Present Situation (Now)
1.1	Brainstorm (SWOT)
1.3	Discussion and Organisation of SWOT
1.5	Rated Strengths
1.8	Rated Weaknesses
1.11	Rated Opportunities
1.13	Rated Threats
Session 2	The Desired Future
2.1	Brainstorm of Desired Future
2.2	Discussion and Organisation of Desired Future
2.4	Rated Future Desires
2.7	Desired Future Statement
Session 3	Strategies to go from the Present Situation to the Desired Future
3.1	Brainstorm of Strategies
3.2	Discussion and Organisation of Strategies
3.3	Initial Brainstorm of Criteria to evaluate Strategies
3.4	Initial Discussion and Organisation of Criteria to evaluate Strategies
Session 4	Evaluation of Strategies
4.1	Discussion and Organisation of Criteria to evaluate Strategies (completed)
4.2	Weighting of Criteria
4.4	Evaluation of Strategies on Criteria
4.4	Weighted factors summary
4.5	Graph comparing the four strategies
4.6	Graph showing the criteria weighting
4.7	Graphs comparing the four strategies on each of the eight criteria
4.9	Graph comparing Rationalisation with Subcontracting on each of the criteria
Session 5	Neutralising Weaknesses and Threats
5.1	Brainstorm on Weakness 1 "Irrigation maintenance staff"
5.2	Brainstorm on Weakness 2 "Communication"
5.4	Brainstorm on Weakness 3 "Maintenance"

- 5.5 Brainstorm on Weakness 4 "Councillors/Exec communication"
- 5.6 Brainstorm on Weakness 6 "No formal specification of maintenance standards"
- 5.7 Brainstorm on Weakness 7 "No job descriptions"
- 5.8 Brainstorm on Threat 1 "Growing dept of local govt providing new opportunities"
- 5.9 Brainstorm on Threat 2 "Low profile for dept"
- 5.10 Brainstorm on Threat 3 "Senior management change their mind frequently"
- 5.11 Brainstorm on Threat 5 "Poor image of stereotype work position"

Session 5 Beginning the Action Plan

- 5.12 Brainstorming an extra 6 dimensions to Rationalisation strategy
- 5.13 Rating of Rationalisation dimensions
- 5.19 Activities to begin 6 of the 17 dimensions of the Rationalisation strategy

Session 1

The Present Situation (Now)

- **1.1 Brainstorm (SWOT)
Strengths, Weaknesses,
Opportunities and Threats**
- **1.3 Discussion and Organisation
of SWOT**
- **1.5 Rated Strengths (Averages
and Graphs)**
- **1.8 Rated Weaknesses (Averages
and Graphs)**
- **1.11 Rated Opportunities
(Averages and Graphs)**
- **1.13 Rated Threats (Averages and
Graphs)**

09-Jul-93
03:12 PM

BRAINSTORM SWOT LIST

1. ASSESSING EXPERIENCE FOR POSITIONS
2. BROAD FIELDS OF INTEREST FOR EMPLOYEES
3. CHANNELLED INTO A STEREO WORK POSITION
4. COMMUNICATION
5. COMMUNICATION BREAKDOWN BETWEEN INSIDE AND OUTSIDE MANAGEMENT
6. COUNCIL INTEREST IN ENVIRONMENTAL ISSUES
7. COUNCILLORS
8. CURATORS GIVE GOOD RATEPAYER FEEDBACK ON A DAILY BASIS
9. DEVELOP NURSERY AS PUBLIC RELATIONS EXERCISE
10. DOUBLING UP OF TASKS
11. ENVIRONMENT
12. EQUIPMENT
13. EXECUTIVE AND COUNCILLOR DECISION MAKING
14. F10
15. FLEXIBILITY OF STAFF
16. GOOD PUBLIC RELATION VIA STAFF RELATIONS
17. GOOD QUALITY SPORTSGROUNDS
18. GROWING DEPT OF LOCAL GOVT PROVIDING NEW OPPORTUNITIES
19. HIGH MAINTENANCE STANDARD
20. IF DOING THE SAME JOB TOO LONG YOU GET STALE
21. IRRIGATION MAINTENANCE STAFF SHORTAGE NEXT SUMMER
22. JOB DESCRIPTIONS
23. LACK OF MAINTENANCE ON NEW PROJECTS
24. LOW PUBLIC PROFILE FOR DEPARTMENT
25. MANAGEMENT
26. NEW TECHNOLOGY
27. PEOPLE
28. PERSONALITY CLASHES
29. PLAYGROUND MAINTENANCE
30. PROFILE WITHIN THE ORGANISATION
31. PUBLIC INTEREST IN ENVIRONMENTAL ISSUES
32. QUALITY OF STAFF
33. QUALIFIED STAFF
34. RECESSION STAFF CUTS
35. RECREATION DEPARTMENT ACTIVITIES AND ROLES
36. SCHOOL
37. SENIOR MANAGEMENT CHANGE THEIR MINDS - FREQUENTLY
38. SPECIFICATIONS
39. STAFF EXPANSION RESTRICTIONS
40. STAFF WORKLOAD IMBALANCE
41. STREETScape DEVELOPMENT
42. STRENGTH - GOOD CROSS SECTION OF DEPT. KNOWLEDGE
43. STRONG SENSE OF BELONG AMONGST STAFF
44. TALKING
45. UNEMPLOYMENT PROGRAMS AND THEIR EFFECT ON OUR WORK LOAD
46. USE OF CONTRACT OPERATIONS

- 47. USE OF CONTRACTORS
- 48. WANT TO STUDY, BUT WHAT DIRECTION???????
- 49. WE ARE DEVELOPING TOO MUCH AND TOO MANY TURF AREAS
- 50. WE ARE NOT CATERING FOR AN AGING POPULATION
- 51. WESTREK OVEREXPENDITURE
- 52. WHO MAKES HOME MADE CAKES AND PASTRIES
- 53. WORKING CONDITION

09-Jul-93

05.30 PM

DISCUSS ORGANISE SWOT LIST

+ 1 STRENGTHS

- 1.1 HAVING PROCEDURE WHICH FITS RIGHT PERSON TO POSITION
- 1.2 BROAD FIELDS OF INTEREST FOR EMPLOYEES
- + 1.3 EMPLOYEES ARE MULTISKILLED - FLEXIBILITY
 - 1.3.1 DEVELOPMENT OPTIONS ARE BROAD (STUDY)
- + 1.4 COMMUNICATION
 - 1.4.1 GOOD LEVEL AT SUPERVISORY & ADMINISTRATIVE
 - 1.4.2 GOOD BETWEEN SUPERVISORY & WORKERS/OUTDOOR STAFF
 - 1.4.3 CURATORS GIVE GOOD RATEPAYER FEEDBACK ON DAILY BASIS
 - 1.4.4 INFORMAL
- 1.5 PLANT AND MACHINERY GOOD
- 1.6 GOOD PUBLIC RELATIONS VIA STAFF RELATIONS
- + 1.7 GOOD QUALITY PARKLANDS/SPORTSGROUNDS
 - 1.7.1 HIGH MAINTENANCE STANDARD
- + 1.8 INNOVATIVE AND WILLING TO TRY
 - 1.8.1 NEW TECHNOLOGY
- + 1.9 GOOD PEOPLE
 - 1.9.1 QUALITY OF STAFF
 - 1.9.2 QUALIFIED STAFF
 - 1.9.3 TRAINING
 - 1.9.4 GOOD CROSS SECTION OF DEPT KNOWLEDGE
 - 1.9.5 STRONG SENSE OF BELONGING/LOYALTY AMONGST STAFF
- + 1.10 USE OF CONTRACT OPERATIONS
 - 1.10.1 SUPERVISION
 - 1.10.2 SPECIFICATION
 - 1.10.3 COST EFFECTIVE
 - 1.10.4 QUALITY
- 1.11 WORKING CONDITIONS

+ 2 WEAKNESSES

- 2.1 PIECE OF PAPER OF MORE RELEVANCE THAN EXPERIENCE
- + 2.2 COMMUNICATION
 - 2.2.1 NEEDS IMPROVEMENT BETWEEN LEVELS SUPERVISORY AND ADMIN
 - 2.2.2 BETWEEN ADMIN & OUTDOOR STAFF/WORKERS
 - 2.2.3 DOUBLING UP OF TASKS
 - 2.2.4 DISPUTE/PERSONALITY CLASHES
 - 2.2.5 RECREATION DEPT ACTIVITIES AND ROLES

- 2.3 COUNCILLORS & EXECUTIVE - COMMUNICATION NON EXISTENT
- 2.4 DEPOT & ADMINISTRATION FACILITIES NEED IMPROVEMENT
- 2.5 LITTLE INFLUENCE ON EXECUTIVE/COUNCIL DECISION MAKING
- 2.6 NO FORMAL SPECIFICATION OF MAINTENANCE STANDARDS
- + 2.7 SOME STAFF MEMBERS IN SAME JOB TOO LONG
 - 2.7.1 GET STALE
 - 2.7.2 NO OPPORTUNITIES
- 2.8 IRRIGATION MAINTENANCE STAFF SHORTAGE NEXT SUMMER
- + 2.9 NO JOB DESCRIPTIONS
 - + 2.9.1 REDEFINE WORKLOAD
 - 2.9.1.1 OUTSIDE STAFF
 - 2.9.1.2 ADMINISTRATIVE STAFF
- + 2.10 MAINTENANCE
 - + 2.10.1 LACK OF MAINTENANCE ON NEW PROJECTS
 - + 2.10.1.1 ALLOCATION/LACK OF RESOURCES
 - 2.10.1.1.1. UNEMPLOYMENT PROGRAMS & THEIR EFFECT ON WORK
 - 2.10.1.2 LACK OF COORDINATION
 - 2.10.2 PLAYGROUND MAINTENANCE
 - 2.10.3 STREETScape DEVELOPMENT
- + 2.11 NEW TECHNOLOGY
 - 2.11.1 NOT BEING UTILISED FOR JOB SATISFACTION
 - 2.11.2 NOT BEING USED EFFICIENTLY
 - 2.11.3 NOT SELECTING CORRECT TECHNOLOGY
- 2.12 NOT CATERING FOR AN AGING POP. & OTHER SPECIAL INT. GROUPS
- + 3 OPPORTUNITIES
 - + 3.1 COUNCIL INTEREST IN PHYSICAL ENVIRONMENTAL ISSUES
 - 3.1.1 STREETScape DEVELOPMENT
 - + 3.2 DEVELOP NURSERY FOR PROPAGATION OF INDIGENOUS PLANTS
 - 3.2.1 ALSO FOR PUBLIC RELATIONS EXERCISE
 - 3.3 COMMUNITY AWARENESS OF THE ENVIRONMENT
 - 3.4 GOOD PUBLIC RELATION VIA STAFF RELATIONS
 - + 3.5 GROWING DEPT OF LOCAL GOVT PROVIDING NEW OPPORTUNITIES
 - + 3.5.1 OPPORTUNITY TO SPECIALISE
 - 3.5.1.1 JOB SATISFACTION FOR EMPLOYEES
 - 3.5.1.2 IMAGE
 - + 3.6 MANAGEMENT
 - 3.6.1 FINANCIAL
 - 3.6.2 RESOURCE
 - 3.6.3 PEOPLE
 - 3.6.4 PLANNING
- + 4 THREATS
 - 4.1 POOR IMAGE OF STEREO TYPE WORK POSITION
 - + 4.2 GROWING DEPT OF LOCAL GOVT PROVIDING NEW OPPORTUNITIES
 - 4.2.1 LACK OF CORRESPONDING RESOURCES
 - + 4.3 LOW PROFILE FOR DEPARTMENT

- 4.3.1 FROM PUBLIC
- 4.3.2 WITH THE ORGANISATION
- _ 4.4 RECESSION
 - 4.4.1 MAY IMPACT ON STAFFING LEVELS
 - 4.4.2 UNEMPLOYMENT PROGRAMS & THEIR EFFECT ON WORK LOAD
- 4.5 SENIOR MANAGEMENT CHANGE THEIR MINDS - FREQUENTLY

RATED STRENGTHS

#	ITEM	AVERAGE RATING
1.	COMMUNICATION	9.50
2.	GOOD QUALITY PARKLANDS/SPORTSGROUNDS	8.50
3.	GOOD PUBLIC RELATION VIA STAFF RELATIONS	7.50
4.	HAVING PROCEDURE WHICH FITS RIGHT PERSON TO POSITION	7.33
5.	INNOVATIVE & WILLING TO TR	7.33
6.	GOOD PEOPLE	7.17
7.	PLANT & MACHINERY GOOD	7.00
8.	EMPLOYEES ARE MULTISKILLED - FLEXIBILITY	6.67
9.	BROAD FIELDS OF INTEREST FOR EMPLOYEES	5.83
10.	WORKING CONDITIONS	5.50
11.	USE OF CONTRACT OPERATIONS	5.33

Graphics would appear here

RATED WEAKNESS

#	ITEM	AVERAGE RATING
1.	IRRIGATION MAINTENANCE STAFF SHORTAGE NEXT SUMMER	8.83
2.	COMMUNICATION	8.33
3.	MAINTENANCE	7.50
4.	COUNCILLORS & EXECUTIVE - COMMUNICATION NON EXISTENT	7.00
5.	LITTLE INFLUENCE ON EXECUTIVE/COUNCIL DECISION MAKING	6.83
6.	NO FORMAL SPECIFICATION OF MAINTENANCE STANDARDS	6.67
7.	NO JOB DESCRIPTIONS	6.33
8.	NEW TECHNOLOGY	5.67
9.	PIECE OF PAPER OF MORE RELEVANCE THAN EXPERIENCE	5.17
10.	DEPOT & ADMINISTRATION FACILITIES NEED IMPROVEMENT	4.17
11.	NOT CATERING FOR AGING POP. & OTHER SPECIAL INT. GROUPS	4.00
12.	SOME STAFF MEMBERS IN SAME JOB TOO LONG	3.67

09-Jul-93

05:57 PM

Graphics would appear here

RATED OPPORTUNITIES

#	ITEM	AVERAGE RATING
1.	COMMUNITY AWARENESS OF THE ENVIRONMENT	8.17
2.	COUNCIL INTEREST IN PHYSICAL ENVIRONMENT ISSUES	7.67
3.	GOOD PUBLIC RELATION VIA STAFF RELATIONS	7.50
4.	DEVELOP NURSERY FOR PROPAGATION OF INDIGENOUS PLANTS	7.50
5.	MANAGEMENT	7.17
6.	GROWING DEPT OF LOCAL GOVT PROVIDING NEW OPPORTUNITIES	6.67

09-Jul-93
06:04 PM

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RATED THREATS

#	ITEM	AVERAGE RATING
1.	GROWING DEPT OF LOCAL GOVT PROVIDING NEW OPPORTUNITIES	8.33
2.	LOW PROFILE FOR DEPARTMENT	8.33
3.	SENIOR MANAGEMENT CHANGE THEIR MINDS - FREQUENTLY	7.50
4.	RECESSION	6.83
5.	POOR IMAGE OF STEREO TYPE WORK POSITION	5.83

09-Jul-93
06:11 PM

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Appendix J Diary Sample

The following is an extract of two days of an electronic diary that was kept during the study.

PHD DIARY

7/1/94 Friday

ok what am I supposed to be doing with the coding?

I am looking for changes in perceptions between sessions ie over time.

How best can I do this?

Need to describe perceptions at each interview time and then make a comparison.

Q How do I describe those perceptions?

code the whole of Ken's conversation? code bits of it with whatever takes my fancy?

Make some holistic, subjective comparisons supported by vignettes.

Comparison, what stays the same

what is new or different?

Should I try take each question eg best things, and compare across each interview?

I feel like I need to print out the data to get a whole feel for it. Particularly for the comparison 1,2,3,4,5

remember it is a two edged question

1) what are individuals perceptions of gss supported meetings

2) how do they change over a series of meetings

OK so where have I got to over this week of 5 working days.....

1) Got all the tape transcriptions back from Joan, so I have a data record (mind you giving access to examiners would have to be on disk and computer screen) the data is too vast eg KG3 is 35 pages long (1" margin).

2) Coded two interviews and have made a "subjective" comparison, based on what has stuck in my head in the course of coding each transcription. Q how you make it

"objective" without losing the meaning? Answer you can't. Maybe all I do is provide what evidence I can that my description is "plausible".

To do next week

Present AW with a comparison between the two interviews showing and justifying what I've done.

10/1/94 Monday

Ok go over KG2 and redo the coding after putting in the line numbering, need to check in the data directories, data1, data2, etc

12 noon lunch

12.30 PM/J

ring AW at home tonite if no word

data1>KG2 (checked for transcription errors? I can't tell, none of the capitalisation has been corrected, so maybe its just a copy of the original?) yes it has been reviewed and checked for transcription errors. (checked via save as, comments), so its in keeping with data1 as described in dataedit

data1>KG3 not sure whether checked for transcription errors because there is no summary info, would have to listen again to be sure (note I must update the summary info each time)

data2>KG2 this has been **cleaned**

data2>KG3 this has been **cleaned** (dataedit definition of cleaned)

data3>KG2 OK this has now been transferred to the codex directory

created codex directory to hold the early coded version of KG2, so I will now delete KG2 from data3 via the file manager (this has been done OK)

data3>KG3 OK this early coded version has now been transferred to codex directory

data4> What's in here? only some muck around so I will delete and remove dir (note have to close file first) Yes I did this via file manager

created a directory called dataplay in order to play around with data files, eg play around with line numbering as per dataedit description, then save to the data3 directory (line numbering)

OK so the **line numbering instructions** are (try with data2>KG2 first), OK done this put it in the dataplay

data3> **line numbered**

1) save as text only with line breaks, with txt extension, then read back in and save as doc

(OK done this with KG2 in dataplay directory) KG2.txt, KG2.doc

2) now for line numbering

0) move down one line from top

a) edit replace * DA with end of line character ^n

edit replace * KGX with non breaking space ^s

b) now select whole document and use line numbering

c) edit replace end of line character ^n with * DA

edit replace non breaking space ^s* with * KGX

coding may now commence

so time is 13:51 now try line number

14:07 finished, so 16 mins more like 3 when I know how it works!!!!!!!!!!

well it took 7 mins...

so I now have line numbered files KG3 and KG2 in data3

now turn my attention to the coding, create a directory called

codeplay....with the KG2 from data3> line numbered

need to transfer the codes I had in KG2, see codex, to

so try get codeplay>KG2 and data3>KG2 alongside each other and then go for it

OK started doing it using x.dot template and side by side

time is 14:38

end of day achievements

OK I did well, the interactive use of this PhD diary file helps me keep track of what I'm doing.

It took me from say 2.30 to 5 which is 2.5 hours to transfer the codes.

I came up with another scheme for comparison, its basically bi directional.

1) q responses? (question comparison across the transcripts), this is to do

kg2 kg3

q1 q1

q2 q2

2) grounded theory comparison

ie collect up the codes for transcript 1 and generate some higher level categories?

do the same for transcript 2.

and then compare them

Note the time to do this analysis is going to become an issue, I've spent 6 days just with two transcripts,

so 3 days per transcript, there are about 7 by 5=35 transcripts, so 90 days work which divide by 5 is about 14 weeks ie 3.5 months, that's a heap of time, too much.

OK tomorrow ring AW, work/home

Do what I did for KG2 for KG3 (half a day). Then work on comparison in the afternoon.

Appendix K Extract of Field Notes Made During Session Observation

The following is an extract of field notes made during observation of the GSS sessions. For brevity, only the notes of the first session are reported. These notes are an electronic version of the handwritten notes. The page references refer to page numbers of the handwritten notes. The first digit indicates the session, the second digit indicates the page.

All sessions occurred during July 1993 in the Curtin GSS Facility.

Observation was undertaken from the rear of the Facility. The researcher sat at the back of the room and was generally not in the line of sight of participants as their focus was either the public screen, the facilitator or each other. The public screen was located on the front wall and the facilitator usually stood at the front of the room.

The researcher's only interaction at a session was providing coffee at the beginning of a session, taking participants to a room for their break and arranging interviews with participants at the end of a given session. Verbal conversation was restricted to those activities. Thus the researcher aimed not to become a participant at the sessions and tried to minimise influence on the proceedings, while gaining insight to enrich understanding during later interpretation of the primary data source, the interview transcripts.

Session 1: CC

2.30 Friday 9 July

page 1.1

- 6 participants (Peter absent), Stan, Jackie, Liam, Terry, Ken, Brian
- Darryl facilitator
- Dianne chauffeur

2.40 pm start

Quiet - participants (P) are. Darryl is doing the talking, participants are listening to Darryl. Having coffee.

Note

Ken made a humorous remark.

(Note the three supervisors seemed wary of the computers, "these are anchors; throw them away".

Darryl still doing the talking at 2.48 pm. Participants still quiet. Darryl assures them about lack of computer skill required, anonymity protection, coffee break.

Dianne says one line

Darryl still talking, introducing SWOT 2.52pm

Dianne is talking and is working with Darryl. The participants are quiet.

The public screen is on, Dianne is talking. Participants have taken jackets off, placed on chairs.

2.58pm

Dianne is typing and talking about the screens, participants are looking at Dianne.

Dianne is mentioning a norm, one person wants an idea on the organised list it stays on.

Participants are opening notebooks. Ken is having trouble. Stan asks a question.

Terry says "are you

page 1.2

aware no one knows how to use these".

Dianne is standing up, walking around the participants.

participants are fairly quiet. Ken is talkative and being humorous. Everyone is quiet.

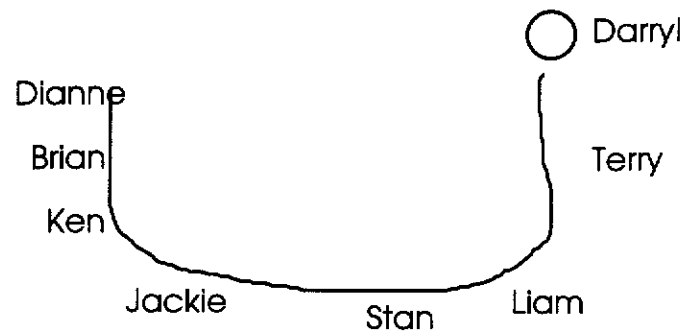
(I wonder how many ideas are actually getting through.)

Wonder if its dominated by the office staff.

Wonder if supervisors will comment on this. 3.05pm

Terry "Someone's been typing quick" [I expect

Darryl is talking, public screen is on, there are about 25 ideas up there. The seating:



Public screen is off.

I haven't heard Jackie or Liam say anything.

Ken is grabbing a coffee.

Ken gave Liam a clip around the ear.

Ken "He's smart our boss"

Darryl "Everyone is equal here"

3.13pm

Computer comfort

Public screen is on briefly (1 minute or so)

Discuss

Darryl is talking

Dianne is getting hard copy printer working.

page 1.3

"Future directions and supporting structures for P&R in the next 3 years"

(This is on the board)

Darryl is at facilitator station.

3.17pm

participants are quiet. Darryl is talking.

Two screens are displayed.

Stan is talking
 Brian is talking
 Jackie is talking
 Darryl is talking
 Jackie is talking

[There seems to be confusion. The issue hasn't really been captured?]

Terry has spoken

Dianne is typing, items going up on public screen.

[Stan is getting at detail, an extraordinary amount of detail seems to be lost]

3.27pm

Liam has not spoken at all (why not?)

They are discussing communication

3.36pm

[Weakness between two offices, Ken, I knew they'd come up with this]

page 1.4

All participants are seated all the time.

Liam said a little

Liam is speaking a little with Jackie

Talkers



Darryl

Ken

Stan

Jackie

Terry

Brian

Liam nothing to Darryl

Dianne quiet

3.46pm

[Communication

Lot of argument about

[Darryl Later on, Later on]

[Move on, Move on]

[Dianne should save the list as she goes, imagine losing the whole outline!]

[Ken's a terror of a guy]

[I'm getting tired sitting here Q What]

Terry looks tired

[This is hard work for them at the end of the day. Liam has a quiet voice.]

[A mini brainstorm might be nice within sections.]

page 1.5

Everyone is seated including Darryl.

3.58pm

41 items remaining

2.5 hours to go

Is written language a rich enough
environment for group
understanding/planning?

How about pictures/diagrams?

Q - How when there is one word like "Environment" capture the 10 different perspectives that are possible on it?

Q - The communication going on here, when does it get converted into actions?

Dianne is speaking a little.

4.06pm

How much does GSS MeetingWorks stimulate or provide equal voice opportunity?
E.g., a person like Liam, does it allow them enough opportunity?

⇒ What's the appropriate mix of written/verbal communication?

What's the influence of group size on the number of pairwise communications possible. Certainly 6 is a much easier group size to handle.

"doing the same job too long you get stale"

"cries of coffee/coffee?"

4.15pm

page 1.6

Back after break, still on discuss/organise

4.32pm

The group sat back in their same seats.

[Stan seemed pleased at the break

Stan, Ken, Jackie are main talkers.

"management" - quite hard for people to talk about Stan - here"

[The group seems quite comfortable with each other. Wonder Q What effect will Peter coming along affect. Q What effect will Brian absence have on group dynamics?

Darryl does not talk to Liam or Terry in terms of bringing out.

Darryl "exploit strengths to take advantage of opportunities and overcome threats"
"neutralise, mitigate weaknesses"

Make sure I give everyone a positive feedback

[Q - given that Liam had very little input, how will he react about the whole thing?
How will he feel over 5 sessions

[Note mints important for maintaining energy.

4.52pm

The facilitator and the facility did not help Liam to speak much.
Darryl spoke to Liam for the first time.

page 1.7

[everyone reports to someone and someone under them?]

There is one woman in this group. Does anyone notice this? Only Stan mentioned it prior to the session.

[The whole session is a very passive (physically). Does anyone mention this as a weakness of the process?]

[Staff workload in balance

5.06

[Outside/inside

Terry says this is the big issue

[I can't help thinking that the MCDM will be confusing and not particularly useful for them.]

Note: the computer illiteracy did not obviously upset them but what will they have to say about the brainstorm?

[Q - It would be interesting to examine brainstorm and see how many ideas come from each person.]

[I'm getting really tired, I wonder how they feel particularly those who

page 1.8

Liam is not saying anything - wonder if he's intimidated by 1-the taping, 2-Ken's henpecking.

5.25pm

People are seated.

People are viewing public screens.

[Note freedom/quality/economic efficiency hasn't emerged at all. Will it come up when the group looks at tradeoffs among strategies.

Darryl go on

5.31

finished the
discuss/organise

The participants had a 5 minute break while the Discuss/Organise list was distributed to the participants.

Dianne is typing. Everyone is quiet.

Now the participants are looking at their screens.

Darryl is describing rating scheme.

[Note - there needs to be a picture of the screen.

Darryl has described a scale 1 to 10.

10=most important, 1=least important

participants are entering numbers for the strength.

5.50pm

Darryl is instructing about technology.

page 1.9

participants are talking to each other about how to end the session.

Darryl is describing the averages

The charts are up.

[The diagnosis of the charts. What about working conditions? Good people?

Q - How are the evaluations to be used?

Jackie How strong is it Vs How important?

Darryl is explaining about weaknesses:

importance = get rid of quickly, neutralises

Stan important weakness but it will take some time to get rid of

Darryl is drawing on board.

Urgency	Impact		
	Hi	M	Lo
Hi	10	8	7
M	6	5	4
L	3	2	1

Darryl They are all important, they will all be considered

6.00pm

2.30-6.30

3.00-7.00pm

[Q - How will Darryl use any of these?

Dianne is now running off copies/working.

page 1.10

Dianne is talking about the reports.

Darryl is standing up and walking around.

Jackie noted that she had forgotten to put something, i.e., lack of females.

Final one the threats.

[Note the analyst here does not have much time to

[Dianne is expressing a problem. Darryl is expressing a problem. Can they solve it?

The tape will run out now.

Darryl is closing, summarising.

6.16pm

END OF APPENDICES

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