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A Team Decision Framework for Quality Decision Outcomes

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Abstract

This paper outlines the Team Decision Framework which follows on from our previous work on optimising the quality of decision-making in groups. The TDF is proposed as a model of the skills and abilities which we have termed 'intelligences' that should ideally be present in order for groups making decisions to achieve their full potential. The paper describes the intelligences and outlines the development of the measuring instrument, using Structural Equation Modelling and exploratory factor analysis. The TDF is designed to profile groups' decision-making capabilities. It is anticipated that such profiling might be used for diagnostic, training and comparative research purposes.

Introduction

In previous publications these authors have argued that, for groups involved in formal strategic planning activities in work organisations, certain procedures and principles need to pertain, for that group to make the very best decisions of which its members are capable at that time (De Reuck, Schmidenberg & Klass 2001, 2000, 1999). According to the General Decision Assurance Methodology developed in these publications, “best bet” decision making of this kind requires an environment that allows for authentic communication which in turn is promoted by such factors as the encouragement and serious examination of diverse views, respect for the individual, acceptance of the possibility of fallibility, a democratic decision-making milieu, and agreement to accepting the authority of the better argument as the final arbiter in debate (De Reuck, Schmidenberg & Klass 2000, 2001, 1999, 2003).

In this paper we again address the issue of decision quality assurance for groups making strategic decisions. We turn our attention this time to the “intelligences” which should ideally manifest themselves in the group in order to maximise the group’s decision-making potential and thus ensure the quality of the decision outcomes. We conceptualise “intelligences” as interdependent and interactive clusters of abilities and skills. The degree to which the intelligences are present in the group and how they are utilized determine the group’s effectiveness in adapting to the demands of their decision-making environment. The intelligences thus define the conditions for the quality of the group’s performance in decision-making. We suggest that measurement of the intelligences could provide a group

diagnostic profile with implications for the education, training and development, and the selection and composition of teams of strategic decision makers.

This paper presents a Team Decision Framework (TDF) comprising the following interdependent and interactive Decision Intelligences: Informed Intelligence, Communicative Intelligence, Critical Intelligence, Creative Intelligence and Decisive Intelligence, all moderated by Group Emotional Intelligence. Section 2 diagrams the TDF. The intelligences are described in Section 3 followed in Section 4 by a brief description of the measurement instrument currently being developed.

2. The Team Decision Framework (TDF)

Following traditional formulations like that of Simon (1976) and Radford (1978), the TDF represents a three-phase conceptualisation of decision making, i.e. inquiry, analysis and choice, but extends this model by including the intelligences that support the phases, as shown in Figure 1. The decision-making round would typically be initiated by the surfacing of some degree of doubt, dissatisfaction or concern about the current situation, or simply by a prudent review of the status quo. The process is iterative, rather than linear, which allows the decision-making team to move back and forth between the phases.

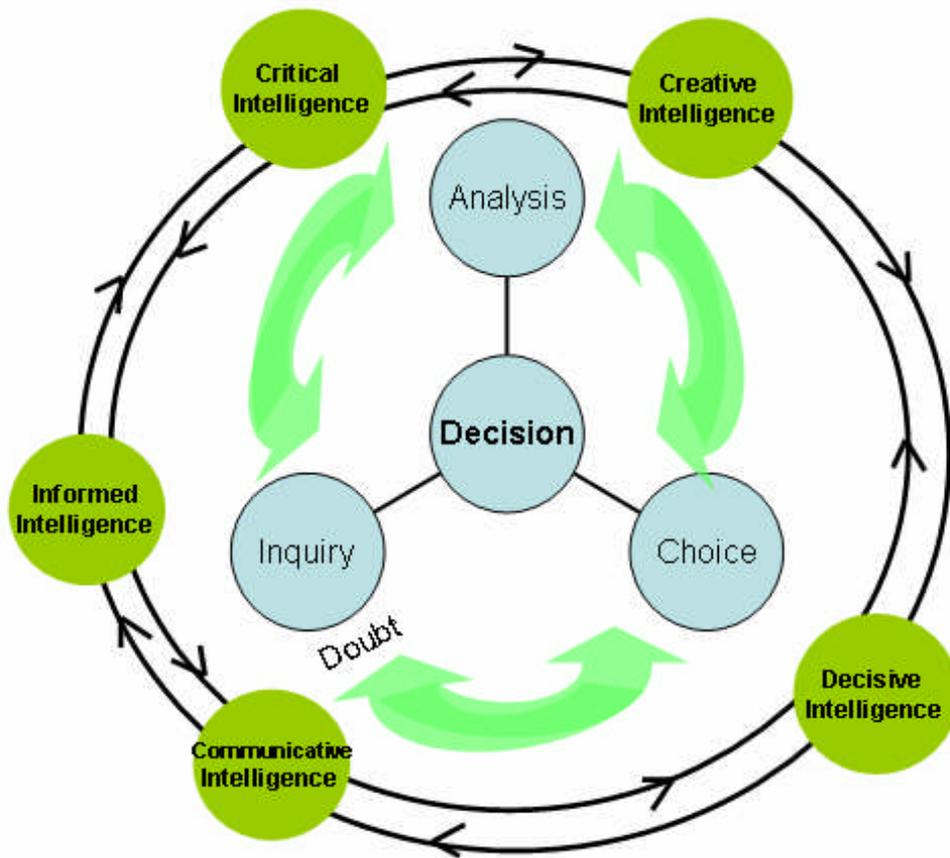


Figure 1. The Team Decision Framework (TDF)

3. The Decision Intelligences.

It should not be assumed that because we are applying the concept of intelligence as previously defined to a group situation that we conceive of the group as having a single “mind”. We view decision-making groups in work organisations not as holistic entities, but as collections of individuals, each with their own roles and responsibilities within the organisation and their own views and intentions. From the perspective of the TDF, it is therefore important that all the intelligences are represented in the group membership but even more so that the intelligences are drawn out and utilised to their best advantage in the group’s proceedings and processes. For example, it is not in the groups’ interests to have in their midst

individuals who are highly creative without making the most of that creative intelligence in the process of problem solving.

The clusters of abilities, capabilities and attributes that go to make up the intelligences are described below. Each cluster is discussed under the heading of the intelligence with which it is primarily linked. However, since the intelligences are interdependent, the components of one might influence the action of another to a greater or lesser degree. For example, the ability to think critically, described under Critical Intelligence, is equally relevant for the evaluation of information under Informed Intelligence, as well as Communicative Intelligence. Similarly, whilst the abilities that go to make up Communicative Intelligence directly address the issue of authentic communication, they also influence all the other intelligences.

3.1 Informed Intelligence

Informed intelligence concerns the group's ability to *access* strategic information, to *evaluate* its relevance and to *utilize* it in a timely manner. In other words, how do we get the information we need? What information do we include and what do we exclude? How can we use that information to our best advantage?

There is a considerable literature about the kind of information that is necessary for strategic purposes (Porter 1980; Thompson 1997; Thompson & Martin 2005). e.g. information relating to

- each of the organisation's functional areas, e.g. marketing, finance, human resources, production, etc;

- the industry or industries in which the organization operates and its broader external context (e.g. its various stakeholders, its markets, and the broader economic, legal, political and social trends) so as to be able to recognize risks and opportunities (Thompson 1997; Rowe et al. 1994; Thompson & Martin 2005);
- the organisation's culture and history so as to be able to judge the likelihood of decision success (McCarty 1997; Cooke 1987; Cooke & Lafferty 1989);
- the organisation's strategic goals and objectives (Keeney 1992; Kaplan & Norton 1996), so that the context for the decision-making is clearly framed.

How the information is accessed depends on personal knowledge, the efficiency and effectiveness of the group's networks and the organisation's recording and reporting structures and systems.

Whilst accessing relevant information is important, the critical feature of Informed Intelligence lies in its ability to assess the information it has, using appropriate criteria to pick out those nuggets that are crucial for strategic purposes, and to utilize them adaptively. What is required is the discovery of task relevant knowledge/information to support the unstructured and messy decision problems inherent in most strategic decisions. A primary feature of these messy and unstructured decision problems is that routine information and knowledge are not sufficient for determining "best bet" decision outcomes. In dynamic operating environments where uncertainty rules, past history and historical trends cannot simply be projected to forecast the future. Our contention is that to

discover task related knowledge the decision team needs to be sensitive to, and have competencies in, the various forms of intelligence being proposed. Evaluation and judgment are the primary abilities that are called for here - and there are many cognitive and affective factors that can influence the direction of a group's evaluations and judgments, for example

- The tendency for individuals to assume that everybody thinks the way they do and therefore that other people attach the same meaning to similar experiences, which Pollner (1974; Pollner 1987) has termed "mundane reasoning";
- Knorr-Cetina's concept of 'epistemic culture', i.e. how participants know what they know and the information they are likely to see as valuable in a particular context (Knorr-Cetina 1999).
- One of the pre-conditions for decision quality assurance is a decision-making climate which is open enough to encourage a diversity of views (De Reuck, Schmidenberg & Klass 2003). For the group to be open to diverse opinions, its members need to accept that each carries his/her own world view and that perceptual differences may lead to different interpretations of a situation.

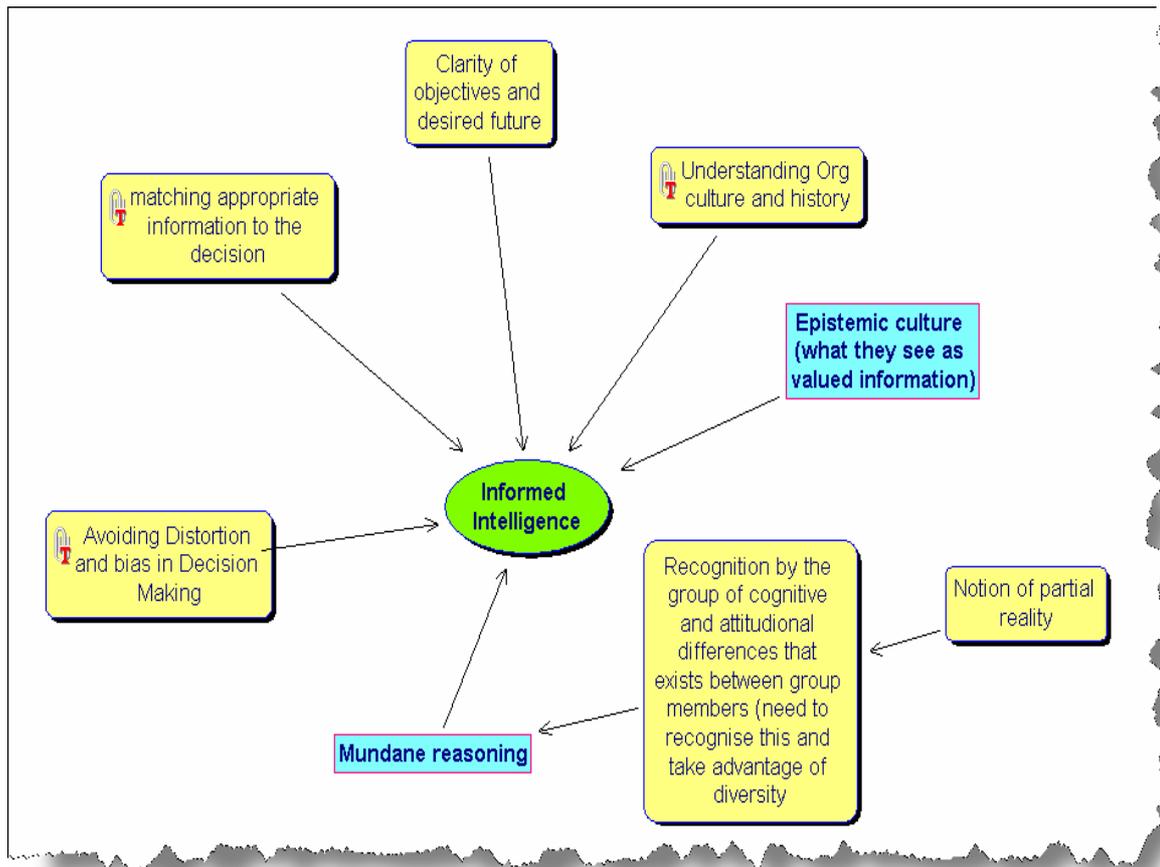


Figure 2. Informed Intelligence

3.2 Communicative Intelligence

Communicative Intelligence has to do with the creation of an environment where authentic communication can take place. Since communication deals with both what is said and what is not said, it calls for sensitivity to the many factors that could lead to communication distortion or suppression, e.g.

- political influences and power-plays (Stacey 1993; Lukes 1986; Stone 1997);
- differing interpretations by group members of what is communicated;

- group dynamic factors, such as ‘the risky shift’ (Wallach, Kogan & Bem 1962), group think (Janis 1972), the impact of group size on group functioning (McGrath 1984), ‘social loafing’(Williams, Harkins & Latane 1981);
- personal conflicts that impede discussion and personalise debate;
- game-playing, such as one-upmanship;
- the decision-making traditions and patterns in the organisation, e.g. authoritarian, participative, consultative or democratic procedures and traditions.

Communicative Intelligence calls for those abilities that enable the group to minimise the negative impacts from these sources and facilitate and enhance their positive effects in addition to communication skills, amongst others:

- Active listening skills;
- The articulate expression of ideas;
- Attitudinal factors. Open communication calls for attitudes of epistemic respect and receptiveness;
- Engaging with the message and not the messenger.

The TDF draws attention to the importance of discourse within teams. Carpio et al (2005) talk about accuracy and being supportive in interpersonal communication and suggest additional principles for supportive communication that include: being descriptive, being validating, being specific, owning a communication, and being a supportive listener. There is little in the literature that attempts to understand or explain

elements of communication between mundane reasoners such as those proposed by Pollner (1974). If team members are unable to understand each other because of their ways of reasoning then this has the potential to compromise the quality of the decisions they take. TDF attempts to enhance the decision reasoning potential of the team by focusing on *unfolding* knowledge through increasing the team's awareness and active utilisation of the concept of integrative connectedness (Klass 1999; Klass & Whiteley 2003) when making decisions. In other words, the TDF attempts to allow members to augment and expand their mundane reasoning frameworks and make them more inclusive of the perspectives of others. The key is to accommodate the epistemic culture and decision reasoning dimensions within the decision making team.

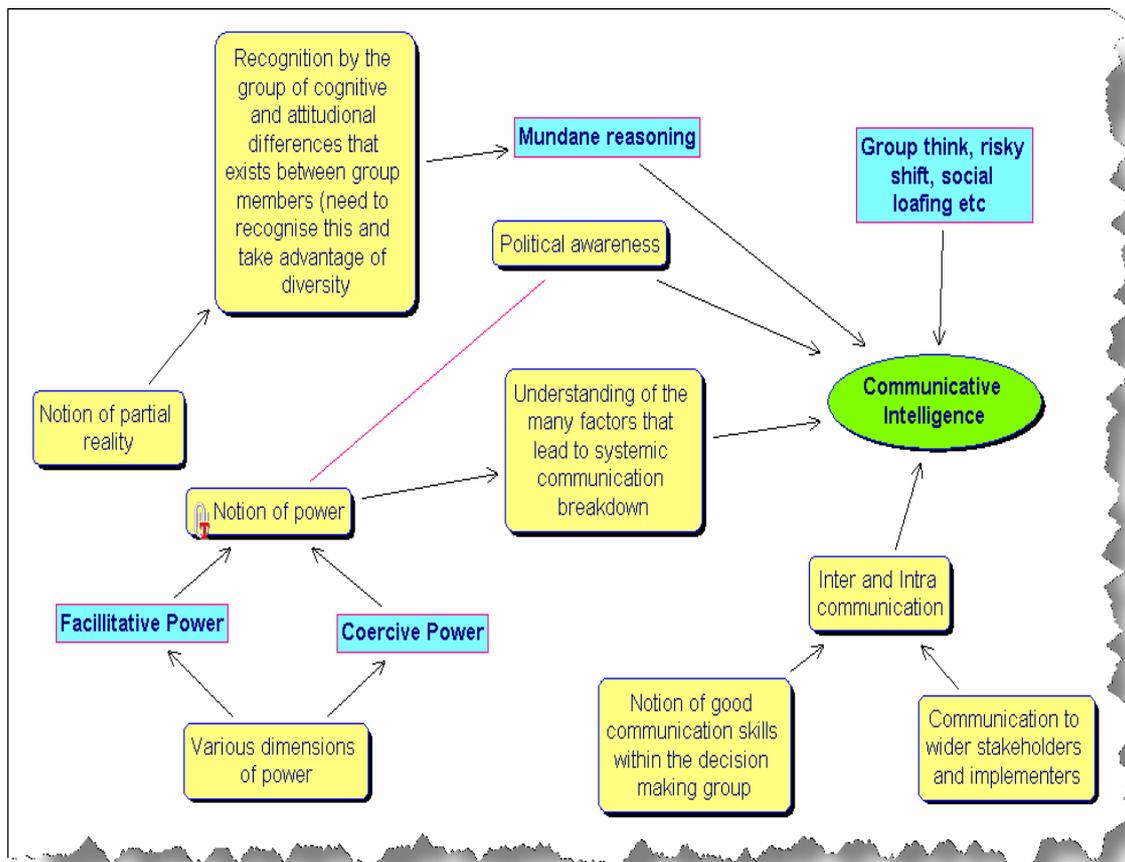


Figure 3. Communicative Intelligence

3.3 Critical Intelligence

Integral to group decision-making is the quality of the discussion, debate and argument about the issues on the table. The pitfalls here are the logical fallacies to which argument can be subject such as errors of deduction, circular reasoning, the dogmatic convictions that accompany attitudes of infallibility, susceptibility to the guiles of rhetoric and propaganda and common cognitive biases in decision-making such as the use of 'heuristics' (Bazerman 1998; Russo & Schoemaker 2002; Taylor & Crocker 1981). Critical Intelligence includes, amongst others, the ability to

- think critically, i.e. "react..... with systematic evaluation to what you have heard and read" (Browne & Keeley 2004) and reason logically through an argument (Lee 1977);
- understand the nature of argument analysis, evaluation and construction; distinguish between logically sound and unsound arguments (Aronson 2002);
- ask the right questions to get closer to the core issues (Browne & Keeley 2004);
- test assumptions and look for evidence to support them.

Exercising these abilities promotes a spirit that allows assumptions to be challenged and surfaced for debate.

In previous publications the authors have suggested that the "alpha argument"(De Reuck, Schmidenberg & Klass 2003) could lead to a premature arrival of a decision. In brief, the effect of this phenomenon is that the later in the debate that cognitive opposition emerges, the less likely it is to be taken seriously. The first emerging argument tends to

build up a momentum of commitment within the group. As time passes and support for the argument is gained, objections to this “alpha argument” often appear to be weak or ill developed partly because of the time frame normally allowed for intervention. Challenges to the alpha argument can as a result too readily be put aside. The decision team should be conscious of the build up of such momentum and allow for the fledging of counter arguments that can reinvigorate debate.

An important dimension in the engagement of argument is allowing decision-makers at any point in their deliberations, to raise questions about validity. These claims can be about *sincerity* when one is referring or talking about a private state, or about *evidence* when one is referring to the natural world or about *standards of correctness* when one is talking about the social world and values (Habermas 1984). Arguments must be defended and calling on the authority of one's position is insufficient grounds for an argument to be accepted. Without this type of authority, that is, the "authority of the better argument" (Habermas 1987) there is the real potential for terminating inquiry and seriously compromising the quality of the decision outcome.

Priem, Harrison & Muir (1995) argue that for a high quality decision to be made, the decision group must explore a number of contrary viewpoints and perspectives, and must evaluate a number of alternate outcomes. Their investigations of cognitive conflict in group decisions lend support to the need to foster a spirit that allows assumptions to be challenged and surfaced for debate. Their study identified that where cognitive conflict had occurred during the decision process

- there is a stronger individual acceptance of a decision
- the level of acceptance was higher in terms of recommended implementation actions; and
- member satisfaction was greater in those groups expressing conflict through the decision process.

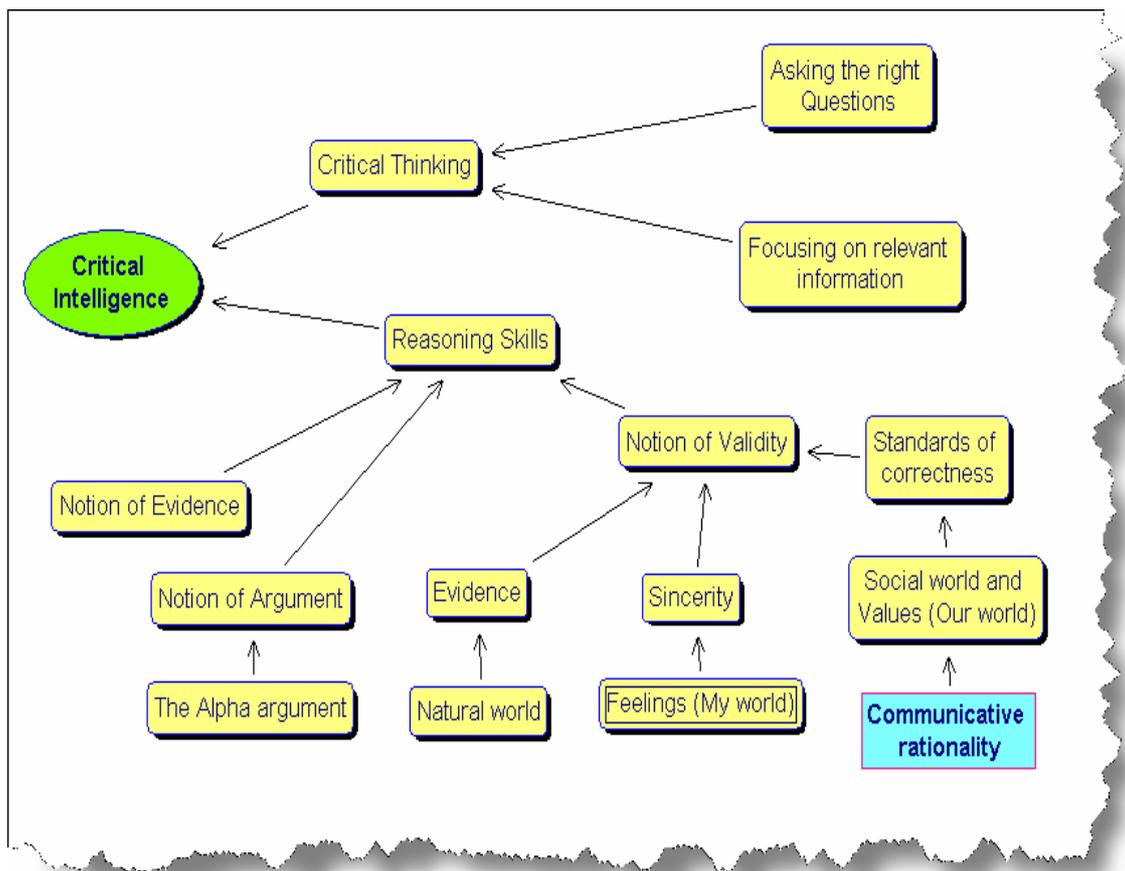


Figure 4. Critical Intelligence

3.4 Creative Intelligence

Creativity is traditionally conceptualised in terms of innovation, originality, and uniqueness (Bohm 1996). It is relevant to problem solving and decision making in difficult situations in that it allows for thinking outside

the square in the identification and formulation of problems and their solutions. Creative intelligence refers to the ability to

- generate innovative, unique and/or original ideas, i.e. think laterally (De Bono 1987, 2003);
- come up with many ideas, since the evidence is that if ideas are prolific, some at least will be innovative (Delbecq, Van de Ven & Gustafson 1975);
- perceive and link ideas in unusual ways and surface tacit knowledge so as to create synergies;
- maintain an open mind and suspend the tendency to resist solutions that involve change;
- tolerate ambiguity
- be “attentive, alert, aware and sensitive” so as to be capable of perceiving something new and unfamiliar” (Bohm 1996).

For Creative Intelligence to be manifest in group decision-making, certain pre-requisites need to pertain at both the organisational and the personal level. In an organisational setting the pre-requisites for creativity reside in organisational structures, systems and cultures that reward and support innovation, provide the time and material resources for the generation, exploration and development of innovative ideas, and involve and challenge the innovator with interesting projects and discussions (Prather 1996). In order to manage risk-taking explorations and tolerate mistakes innovative organisations need the financial resources to risk the implementation of innovative solutions to strategic problems or to sustain many mistakes, as IBM was able to do for many years. In the absence of

organisational conditions that encourage creativity, it is possible that innovative decisions generated by a decision team will encounter many setbacks at the implementation stage.

Following Prather (1996) factors that enhance the motivation to innovate at the personal level include

- the social support necessary to encourage innovative thinking;
- the stimulation of social interaction that is humorous and playful;
- a climate of trust, and openness which values innovative thinking;
- confidence that any conflict will be directed toward the idea and not the personality or relationship;
- allocation of sufficient time for the gestation and discussion of ideas.

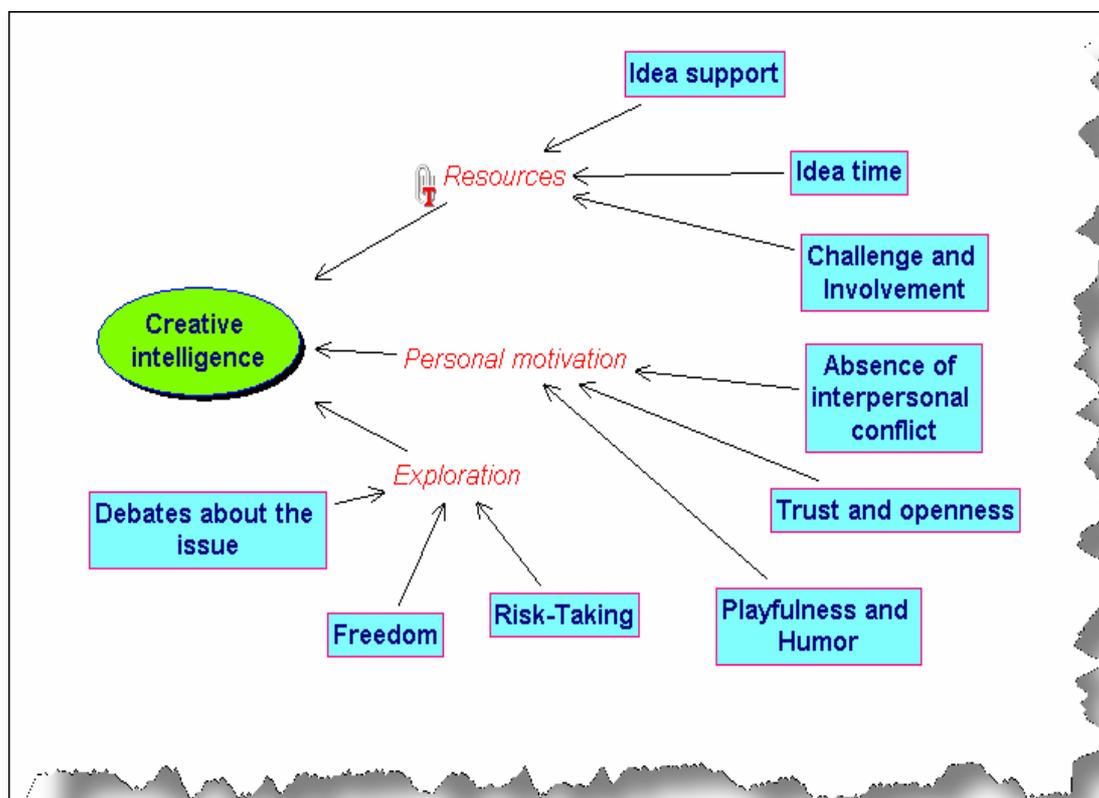


Figure 5. Creative Intelligence

3.5 Decisive Intelligence

An assumption underlying the TDF is that the use of decision tools will improve the outcome quality of complex decisions. Thus the prerequisites for Decisive Intelligence are sound decision tools, processes, principles and systems. Decisive Intelligence comprises the ability to effectively frame problems, make choices, utilise cognitive support tools and understand the process for optimising decision outcomes under conditions of uncertainty.

Framing determines the viewpoint from which decision makers look at the issue and set parameters for which aspects of the situation they consider important and which they do not. It determines in a preliminary way, what criteria would cause them to prefer one option over the other. The way decision makers frame a problem exerts enormous control over the options they recognise and the solutions they choose since it draws our attention to certain aspects of a situation, highlighting them, while leaving other equally important aspects in the shadows, obscured from view.

Making choices focuses on skills in comparing. There is always scope for choice in the way alternatives are compared, for example, in the formulation of the criteria used; in the methods of assessment; and in the extent to which numerical or other indices are introduced to narrow the full range of alternative to a more limited working shortlist.

Priem, Harrison & Muir (1995) argue that for a high quality decision to be made, the decision group must explore a number of contrary viewpoints and perspective, and must evaluate a number of alternate outcomes.

The notion of analysis and decision modelling are key dimensions within the TDF that provides cognitive support to the decision making team. The main aim of decision analysis and modelling is not to determine a scientifically determined solution, but to provide the decision makers with cognitive support in their deliberations. Multi-attribute theory enables decision makers to break down their problem into manageable components; encourages them to remain rational and consistent during their attempts at evaluating decision alternatives; and remain mindful of any possible biases. Goodwin and Wright (2004) argue that decision analysis helps decision makers face and deal with decision complexities by breaking them down into their constituent parts and providing “a formal mechanism for integrating the results so that a course of action can be provisionally selected”.

Decision Analysis is seen as a method for producing optimal solutions to complex decision problems and the TDF suggests the need for the decision team to have a reasonable threshold in the understanding and utilisation of decision analytic tools and see models as being used as ‘thinking tools’ to support the decision process and promote creativity. Keeney (1982) argues that

Decision analysis will not solve a decision problem, nor is intended to. Its purpose is to produce insight and promote creativity to help decision makers make better decisions ((Keeney 1982)).

In many decision situations there are demands for more information, clearer objectives and for more coordination. These demands can be regarded as different kinds of attempts to manage the uncertainty inherent

in the decision situation. Friend and Hickling (1987) describe these demands as three different types of uncertainty that need to be managed.

They refer to them as

- uncertainties about the working environment;
- uncertainties about guiding values; and
- uncertainties about related agendas.

They argue that these uncertainties can be effectively managed to improve the confidence of the decision makers in the decision taken when faced with complex decision situations. The TDF model is sensitive to these dimensions of uncertainty management and in addition allows for the accommodation of uncertainty by recognising expected value principles and concepts.

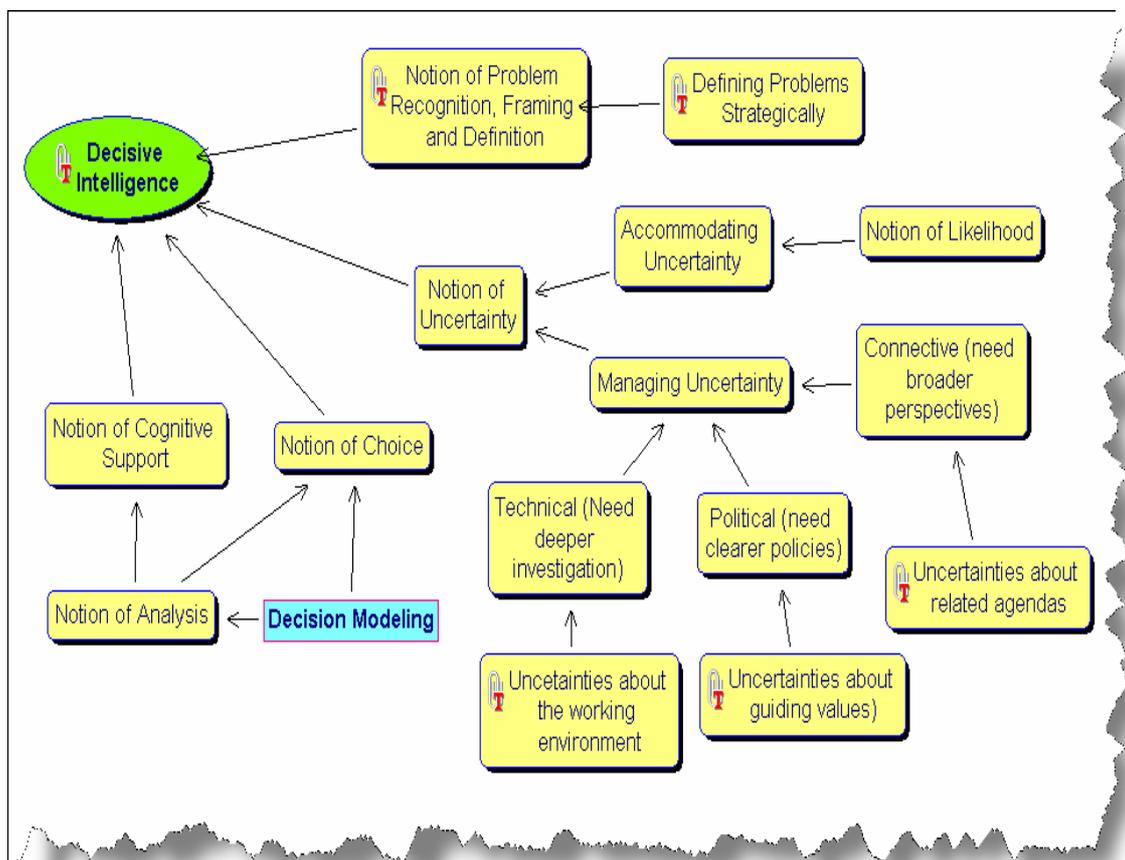


Figure 6. Decisive Intelligence

Group Emotional Intelligence (GEI)

Following Goleman (1998), TDF sees Group Emotional Intelligence as an overarching intelligence that moderates the potential benefits the group can achieve from the inherent intelligences present within the group. Group Emotional Intelligence (GEI) addresses the emotional, personal, social, and survival dimensions that need to be present to allow the decision team to fully realise its potential. Ideally, individuals within the decision-making team not only need to understand themselves but also need to understand and be sensitive to other team members and be able to adapt and cope successfully with the pressures associated with group decision-making. The extent to which a group is capable of this represents its emotional intelligence.

The TDF recognises several dimensions that impact on the status of a group's emotional intelligence. These dimensions are a subset of the BarOn (2004) Emotional Quotient Inventory instrument and are listed below:

Interpersonal dimensions

- Empathy
- Social Responsibility

The BarOn Emotional Quotient Inventory (EQI) defines *empathy* as the ability to be aware of, to understand, and to appreciate the feelings of others and sees *social responsibility* as the ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group.

Intrapersonal dimensions

- Self Regard
- Independence
- Self-Actualisation

The EQI defines *self regard* as the ability to respect and accept oneself as basically good. Respecting oneself is self-acceptance and self-liking. *Independence* is the ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency.

Self-actualisation pertains to the ability to realise one's potential capacities.

Adaptability dimensions

- Flexibility
- Problem Solving

Flexibility in the EQI instrument is the ability to adjust to one's emotions, thoughts, and behaviour to changing situations and conditions while *problem solving* aptitude focuses on the ability to identify and define problems, as well as to generate and implement potentially effective solutions.

Stress and General Mood

- Impulse Control
- Optimism
- Happiness

Impulse control is the ability to resist or delay the impulse, drive, or temptation to act.

Optimism is the ability to look at the brighter side of life and to maintain a positive attitude even in the face of adversity.

Happiness in the BarOn EQI is defined as the ability to feel satisfied with one's life, to enjoy oneself and others, and to have fun.

4. The TDF measuring instrument.

The development of the Team Decision Framework (TDF) instrument forms part of an ongoing research programme to enable decision teams to achieve “best bet” decision outcomes. There are two aspects to this research: confirmation of the proposed theory through Structural Equation Modelling (SEM), and measurement of the various intelligences to determine decision teams' profiles. The two approaches will be carried out concurrently.

4.1. Theory Confirmation

In Structural Equation Modelling (SEM) the process of model specification necessarily begins by considering the theoretical model underlying a particular piece of research. That is, the causal modelling process begins at the conceptual level. Our approach in developing the TDF was based on theory and content expert input. Figure 7 shows the structure of the base main effects SEM model.

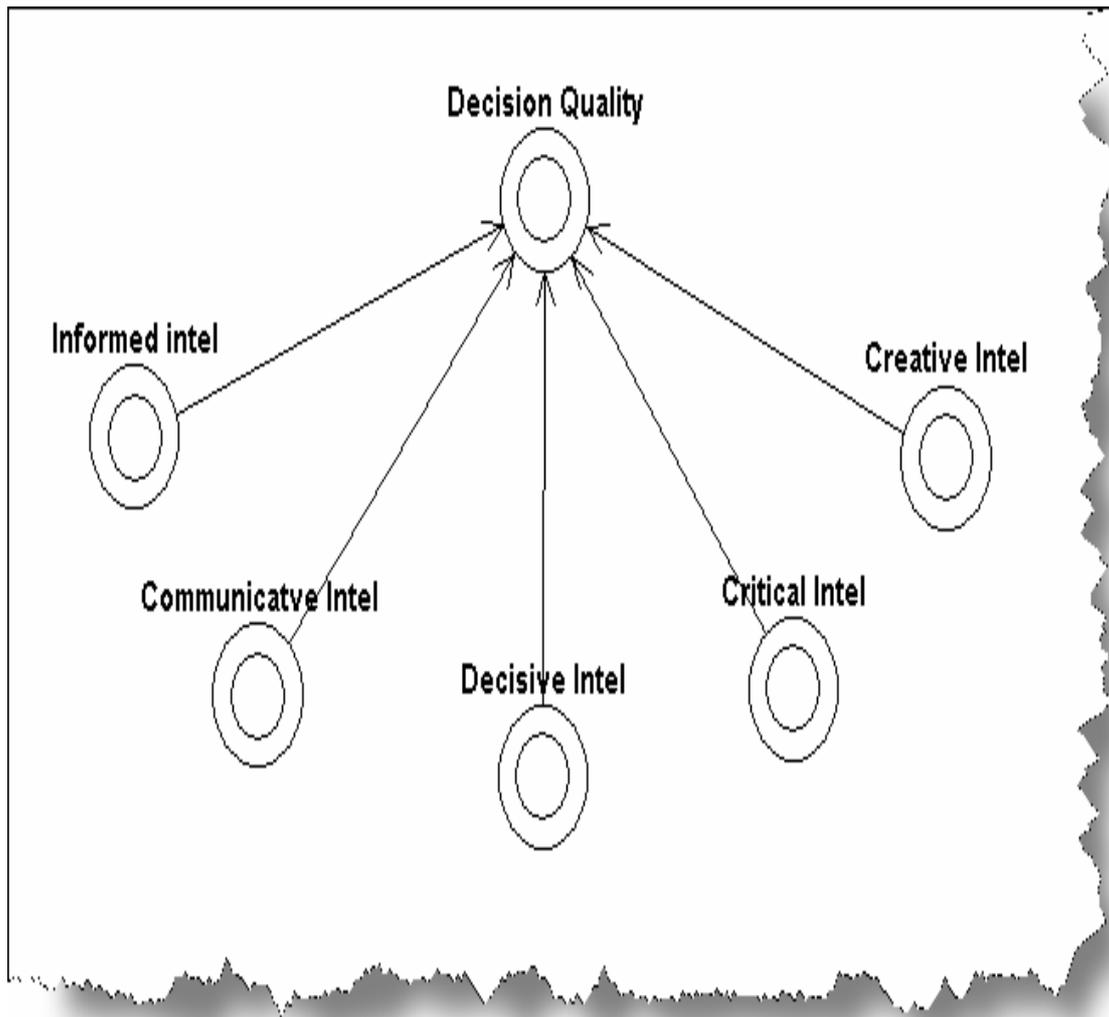


Figure 7. The base structural model

The next step is to modify the model to accommodate group emotional intelligence as a moderator variable. This involves creating interaction terms as illustrated in Figure 8.

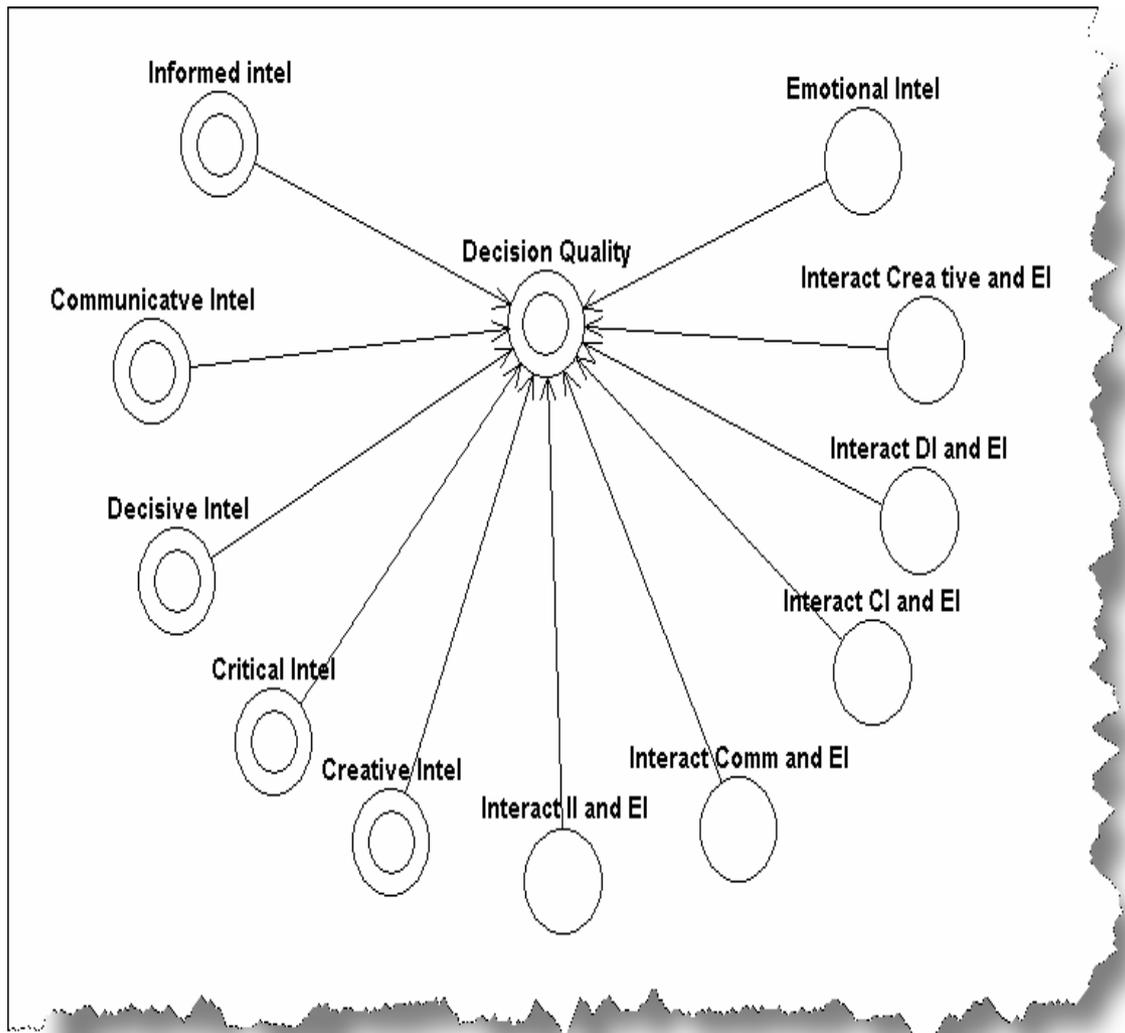


Figure 8. The structural model with interaction terms (i.e. Group Emotional Intelligence as a moderator variable)

4.2. The development of the measurement scale

The approach taken in developing the measurement instrument involves exploratory factor analysis which will include the following four major phases:

- Determining the logical clustering of variables and the identification of key factors believed to affect the quality of decision-making outcomes. This is based on the authors' experience with decision analysis and group facilitation. The decision-making and decision

analysis literature was used to augment the authors' observations and provided additional insights and dimensions for the framework.

- Operationally defining these factors.
- Developing questionnaire items that relate to these factors and testing their reliability and validity. Two basic types of reliability studies will be carried out: internal consistency and retest reliability. Several validity tests will be carried out including content validity, construct validity, predictive validity and face validity (Murphy & Davidshofer 2005; Thorndike 2005).
- Normative data gathering and benchmarking.

It is anticipated that the profile derived from the application of the TDF will be presented pictorially and normalised so as to allow comparisons between different teams within organisations and between organisations. It is anticipated that this instrument will be used to help design and tailor training programs to enable organisations to improve their decision-making capability and will aid in the selection of decision teams.

5. Conclusion

The TDF represents an extension of the line of theory development and research which focuses on the quality of decision processes and outcomes in group settings. In terms of decision management, the TDF has wide practical application as an effective mechanism for providing empirical evidence to identify and address individual and team training and development needs. In addition, the measurement instrument, once completed, offers fruitful possibilities for research within and between organisations. The intelligences that make up the TDF represent a

consolidation of many strands of theory and research all of which converge in the decision quality arena. As such the TDF represents a cohesive structure around which educational programs might be developed for business students.

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