Science and Mathematics Education Centre

Effects of Teachers School-level Environment Perceptions on Changing Elementary Mathematics Classroom Environments

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ABSTRACT

The purpose of this study was to establish an action research plan for teachers to improve student outcomes by assessing, describing, and changing their classroom environments. This study relied on student perceptions, using survey responses, to assess and describe the classroom environment. Teachers used this information to develop intervention strategies designed to change the students' perceptions of their actual classroom environment to more closely mirror their preferred classroom environment perceptions.

More than forty years of classroom environment research has proven the importance of the classroom environment in developing positive student outcomes. Additional research has established the reliability of student perceptions of their learning environment. Previous research has developed several dependable student survey instruments to measure student perceptions of their classroom environment.

This study was conducted in a Title I elementary school in the United States over a seven month period. Two intermediate level mathematics teachers participated in the project. Both quantitative data, using the *My Classroom Inventory* (MCI) and the *School Level Environment Questionnaire* (SLEQ), and qualitative data, teachers' case studies, were collected and analyzed.

The study established that an action research plan for teachers to assess, describe, and change their classroom environments could be developed. However, even

though teachers realized the benefits, for their students and themselves, in changing their classroom environments, school level environment demands negatively influenced their willingness to implement changes to their classroom environments.

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CHAPTER 1

INTRODUCTION

The focus of this research study was to document if teachers were willing to assess, describe and change their classroom environments to improve student outcomes. The study took place over a seven-month period at an elementary school located in the United States. I, as the researcher was a full-time grade 5 mathematics teacher at the research site. Two intermediate level mathematics teachers, one in grade 4 and one in grade 5 volunteered to participate in the study.

Data for assessing and describing the classroom environment was collected through surveys documenting student perceptions, both actual and preferred, of their mathematics classroom environments. After reviewing and reflecting on this data, the teachers and I developed intervention strategies designed to change the students' perceptions of their mathematics classroom environments. These changes were designed and implemented to have the students' perceive their present classroom environment as their preferred learning environment.

Observations and conclusions were presented in two case studies. The case studies detailed each teacher's attitudes towards classroom environment importance and willingness to change the environment based on student perceptions. Special attention was placed on documenting if the teachers' school site environment affected the teachers' willingness to institute changes to their classroom environments.

1.1 BACKGROUND

The mathematics classroom environment and the teacher's responsibility to establish a nurturing learning climate is important in producing positive student outcomes. As stated by the National Council of Teachers of Mathematics:

> Teachers establish and nurture an environment conducive to learning mathematics through the decisions they make, the conversations they orchestrate, and the physical setting they create. Teachers' actions are what encourage students to think, question, solve problems, and discuss their ideas, strategies, and solutions. The teacher is responsible for creating an intellectual environment where serious mathematical thinking is the norm. More than just a physical setting with desks, bulletin boards, and posters, the classroom environment communicates subtle messages about what is valued in learning and doing mathematics. If students are to learn to make conjectures, experiment with various approaches to solving problems, construct mathematical arguments and respond to others' arguments, then creating an environment that fosters these kinds of activities is essential.

Research studies have shown that one way to improve student outcomes is by changing classroom environments to those preferred by the students (Fraser & Tobin, 1998). Changing classroom environments involves a process of assessing students' perceptions of their actual and preferred classroom environments, identifying discrepancies, and then implementing strategies aimed at reducing differences between these perceptions (Fisher, 1985).

Many factors influence a teacher's ability to promote positive student outcomes. This study investigated whether teachers' awareness of the students' perceptions of their elementary mathematics classroom environment would encourage them to change their mathematics classroom environment.

Understanding the classroom environment is the first step to shaping it (Fraser & Tobin, 1998). In this research study, it was assumed that student attitudes and perceptions are seen as basic elements of the learning process and essential to understanding their classroom environments. It was also assumed that understanding the classroom environment was an important first step in developing a learning atmosphere associated with a range of important student outcomes.

It was intended to achieve the goals of this study in a non-threatening atmosphere that encouraged change based on student perceptions of the learning environment. These actions were proposed as points of reference for improvement rather than hammers for change (Freiberg, 1999). Teachers in this project were not asked to change without knowing why, nor forced to change over night (Creemers & Reezigt, 1999).

1.2 RESEARCH QUESTIONS

The research questions to be answered in this study were:

1. *Can a plan be developed to assist teachers in using student preferred and actual perceptions to accurately assess their classroom environments?*

2. *Can a framework be constructed for teachers to utilize student actual and preferred perceptions to properly describe and understand their classroom learning environments?*

3. *Will the awareness of discrepancies between student preferred and actual perceptions encourage teachers to change their mathematics classroom environment?*

With this approach, feedback to teachers is based on the perceptions of the most actively involved in the learning process – the students and teachers themselves - and therefore, is more likely to bring changes in the environments (Fraser, 1999).

1.3 SIGNIFICANCE OF THE STUDY

The purpose of this study was to improve student outcomes by involving teachers in an action research process aimed at changing the mathematic classrooms environment. The action research process established the teacher as an investigator. The study also had significance for the teachers as it promoted reflective teaching. Therefore, the study encouraged the teachers to fulfill their professional obligations of continuous profession growth.

This research study allowed the teacher to be introduced to actual research processes. The data collected by the teacher were seen as non-threatening since they were collected and examined by only the teacher and researcher since research occurred in the teacher's own classroom, using their own children.

This project was designed to not only improve student outcomes but also to develop teacher confidence and resiliency. This project allowed the teachers to develop a clearer sense of the complexities of their learning environments and showed the teachers how to maximize their efficiency by connecting instructional activities to student perceptions. The teachers were able to maintain effective teaching routines while refining and refocusing their teaching styles. The study pointed out to teachers their existing positive behaviors, thus nurturing teacher confidence in their ability to significantly improve student outcomes.

1.4 OVERVIEW OF METHODOLOGY

The survey instrument, *My Classroom Inventory* (MCI), (Fraser, 1986), was used to collect data on student perceptions of their mathematics classroom environment. The MCI contains 25 items covering five domains. The MCI has two forms, Actual and Preferred. The Actual form of the MCI was used as both a pretest and posttest. The Preferred form of the MCI was used for comparison with the pretest.

The participating teachers' school environment perception data were collected using the *School Level Environment Questionnaire* (SLEQ), (Fisher & Fraser, 1990). The SLEQ contains 56 questions covering eight domains. The instrument also was developed in two forms, Preferred and Actual. The Actual form of the SLEQ was used as both a pretest and posttest. The Preferred form of the SLEQ was used for comparison with the pretest.

To construct a case study for each participating teacher interview sessions were held throughout the research period. These sessions provided the teacher and me with

opportunities to develop intervention strategies designed to change student perceptions of their mathematics classroom environment. The qualitative interview data were triangulated with the quantitative survey data to construct a detailed understanding of the teachers' attitudes towards changing their classroom environments to improve student outcomes.

1.5 OVERVIEW OF THE THESIS

The first chapter of this thesis has provided an introduction to the research project. It states the research questions, and describes the study's significance and methodology. A literature background is provided in Chapter 2 on classroom environments, school level environments, student perceptions, and characteristics of the mathematics classroom environment that affect positive student outcomes.

Chapter 3 contains a description of, and reasoning for, the research methodology chosen. This chapter reports on data collection, classroom and school environment questionnaires, characteristics of a positive learning environment, and data analysis and reporting. A case study for each of the participating teachers is reported in Chapters 4 and 5. The quantitative and qualitative data collected during the project is triangulated in the case studies to provide reasoning and depth for occurrences during the research period.

Chapter 6 discusses the teachers' combined data and Chapter 7 is the concluding chapter which provides answers to the research questions and reports and justifies the study's findings. This chapter reports on the overview of the study, implications for

teaching and learning in the United States, limitations, and suggestions for further research.

CHAPTER 2

RESEARCH LITERATURE REVIEW

2.1 INTRODUCTION

One orientation of past learning environment research has involved the investigation of associations between student' cognitive and affective learning outcomes and their perceptions of their classroom environments (Fraser, 1999). Research suggests that student achievement can be enhanced by changing the actual classroom environment in ways that make it more congruent with the environment preferred by the students (Fraser & Fisher, 1983).

Chapter 2 reviews previous classroom environment research and describes nine classroom environment instruments. Research detailing the value of student classroom perceptions is reviewed. The effect that student-teacher relations have on student learning outcomes and the importance of establishing an atmosphere of community in the classroom is also examined. The chapter also contains a review of previous research on using school climate surveys, the school's climate's effect on teacher morale, and previous use of the school climate survey used in this study. The chapter concludes with a review of qualitative research methods.

2.2 CLASSROOM ENVIRONMENT RESEARCH

Murray (1939) introduced the term *alpha press* to describe the environment as observed by outside observers and the term *beta press* to describe the view of

observers who are also participants within the environment. These definitions have led to research using students' and teachers' perceptions of the classroom as opposed to the outside observers to better define the environment from perspectives of the participants from within the environment. This research direction has led to using teacher and student perceptions of the classroom in attempts to improve student learning outcomes.

Learning environment research in education has developed as an out-growth of industrial work-place climate studies. In the 35 years since pioneering use of classroom environment assessment in an evaluation of the Harvard Project Physics (Walberg & Anderson, 1968), the field of learning environments has undergone remarkable growth, diversification, and internationalization.

Classroom environment questionnaires originated at about the same time in the research programs of Herbert Walberg and Rudolf Moos. Walberg developed the instrument *Learning Environment Inventory* (LEI) as part of the evaluation process for the Harvard Project Physics (Walberg & Anderson, 1968), while Moos designed social climate scales for hospitals and correction facilities which led to the development of the *Classroom Environment Scale* (CES). These two researchers pioneered the field of classroom environment research. Classroom environment questionnaires have now, evolved into refined data collection instruments. Fraser (1998), notes nine important classroom learning environment instruments (Table 2.1), *Learning Environment Inventory* (LEI) (Walberg & Anderson), 1968); *Individualized Classroom Questionnaire* (ICEQ) (Fraser, 1990); *Classroom Environment Scale* (CES) (Fisher & Fraser, 1983; Moos, 1979; Moos & Trickett,

1987); College and *University Classroom Inventory* (CUCEI) (Fraser & Treagust, 1986); *My Classroom Inventory* (MCI) (Fisher & Fraser, 1981; Fraser & O'Brien, 1985); Questionnaire on Teacher Interaction (QTI) (Wubbels & Brekelmans, 1998; Wubbels & Levy, 1993); *What Is Happening in this Class?* (WIHIC) (Aldridge, Fraser & Huang 1999); *Constructivist Learning Environment Inventory* (CLES) (Taylor, Dawson & Fraser, 1995; Taylor, Fraser & Fisher 1997); *Science Laboratory Environment Inventory* (SLEI) (Fraser & McRobbie, 1995). Table 2.1 lists each instrument, its recommended academic level, the number of items contained in each scale and the classification for each scale according to Moos (1974) scheme for classifying human environments. Moos' three basic dimensions are *Relationship* (personal relationships within the environment), Personal Development (which assess personal growth) and *Systems Maintenance and System Change* (which involves the orderly operation of activities within the environment).

A unique attribute of the instruments listed in Table 2.1 is that many are designed in two forms, Actual and Preferred. The Actual form records the perceptions of respondents for their present classroom environment. The preferred form asks the respondent to consider their ideal or preferred classroom environment.

Table 2.1
Overview of Scales Contained in Nine Classroom Environment Instruments

Instrument Level	Items per scale	Scales classified according to Moos's scheme		
		Relationship dimensions	Personal development dimensions	System maintenance and change Dimensions
Learning Environments Inventory (LEI) Secondary	7	Cohesiveness Friction Favoritism Cliqueness Satisfaction Apathy	Speed Difficulty Competitiveness	Diversity Formality Material Environment Goal direction Disorganization Democracy
Classroom Environment Scale (CES) Secondary	10	Involvement Affiliation Teacher support	Task orientation Competition	Order and organization Rule Clarity Teacher control Innovation
Individualized Classroom Environment Questionnaire (ICEQ) Secondary	10	Personalization Participation	Independence Investigation	Differentiation
Inventory (MCI) Elementary		Friction Satisfaction	Competitiveness	
College and University Classroom Environment Inventory (CUCEI) Higher Education	7	Personalization Involvement Student Cohesiveness Satisfaction	Task Orientation	Innovation Individualization
Questionnaire on Teacher Interaction (QTI) Secondary/ Primary	8 to 10	Helpful/friendly Understanding Dissatisfied Admonishing		Leadership Student responsibility Uncertain Strict

Table 2.1 cont

Science Laboratory Environment Inventory (SLEI) Upper Secondary/ Higher Education	7	Student cohesiveness	Open-Endedness Integration	Rule clarity Material environment
Constructivist Learning Environment Survey (CLES) Secondary	7	Personal relevance Uncertainty	Critical voice Shared control	Student negotiation
What is Happening in This Classroom (WIHIC) Secondary	8	Student cohesiveness Teacher support Involvement	Investigation Task orientation Cooperation	Equity

Student classroom environment questionnaires have been used worldwide and translated into many different languages. The instruments have been used by hundreds of researchers, thousands of teachers, and millions of students (Fraser, 1998).

Teachers have found these instruments to be useful in gathering information about their classroom learning environments, as these questionnaires have proven to be effective instruments for collecting feedback for teachers, to use in assessing, describing and changing classroom environments to improve student outcomes (Fraser, 1998).

Defining the classroom learning environment as the shared perceptions of the students has the benefit of seeing the environment as the students themselves do. Students have proven to be credible observers of the classroom due to their experiences in several classrooms during their academic years (Fraser, 1998). Thus, the use of these classroom environment questionnaires provides a description of the classroom environment from the shared perspectives of the students in the classroom.

Several literature reviews (Fraser, 1986, 1994, 1998; Fraser & Walberg, 1991) place these developments into historical perspective and show that learning environment assessments have been used as a source of dependent and independent variables in a rich variety of research applications spanning many countries. The assessments of learning environments and research applications have involved a variety of qualitative methods, and an important accomplishment within the field has been the productive combination of quantitative and qualitative research methods (Tobin & Fraser, 1998).

2.3 USING STUDENTS' PERCEPTIONS TO ASSESS, DESCRIBE AND CHANGE CLASSROOM ENVIRONMENTS

Fraser (1981) has proposed a basic approach to improving the students' perceptions of their classroom learning environments. This approach involved the assessing of student classroom perceptions, collecting feedback and through reflection and discussions developing intervention strategies to improve the students' perceptions of their learning environment.

Through reflection and discussions, teachers and researchers established general intervention goals. The promotion of more positive classroom communications

between teacher and student was found to be important. Interventions were developed to have the students perceive their teachers as more sympathetic, helpful and reassuring. Additional strategies were developed to change the class attitude to becoming more positive, especially toward students having difficulties (Fraser, 1989).

In one study (Fraser, Yarrow, & Millwater, 1997) using the *My Class Inventory* (MCI) (Table 2.1), students were asked to suggest intervention strategies that would improve their classroom learning environments. Changes were suggested by the children to promote collective ownership and responsibility, by both the teacher and students.

Some specific interventions (Table 2.2) were instituted to improve the classroom learning environment. The MCI dimensions of Friction and Cooperation were seen as requiring special attention. Interventions were also developed to promote individualization of student goals. The interventions established (Table 2.2) were demonstrated to be successful in improving student perceptions of their learning environments.

Table 2.2
Sample of Children's Suggestions for Actions to Improve Classroom Learning Environments

MCI Scale		Intervention Strategies
Satisfaction	*	Allow more flexibility grouping
	*	Do more work of interest to individuals and the class.
	*	Children to be involved in more classroom decisions.
Friction	*	Be fair as a teacher - more consistent rules.
	*	Teacher to take prompt and positive action to intervene in aggressive interactions
	*	Have more team sports in order to work better as a team.
Competition	*	Get rid of boy/girl competition and have more of a class focus.
	*	Spend more time on getting to know one another.
	*	Limit use of charts and posting grades in public.
Difficulty	*	Let the not-so-bright students sit with the bright.
	*	Present more challenging work in different ways. (e.g., role play)
	*	Monitor homework regularly.
Cohesion	*	Don't say that some people are better than others, and work together.
	*	Have class meetings two or three times a week to discuss problems.
	*	If you can't say anything nice, don't say it at all.

Throughout this process of assessing, describing and changing the classroom learning environment, interventions were proven to be successful in addressing teacher-student interactions and in establishing a more compassionate, caring and helpful learning environment.

2.4 STUDENT PERCEPTIONS

As discussed earlier, research studies have shown that one way to improve student outcomes is by changing classroom environments towards those preferred by the students (Fraser & Tobin, 1998). This process of changing classroom environments involves assessing students' perceptions of their actual and preferred classroom environments, identifying discrepancies, and then implementing strategies aimed at reducing these differences (Fisher, 1985).

Students have proven to be more reliable judges of the quality of instruction and tend to agree about which characteristics contribute to good learning (Cleveland, 1992). Even first grade students are aware of differences in instructional and emotional climate (Kuklinsk & Weinstein, 2000). By the third grade, most students could tell you if they like or hate school, which teachers are caring and if they are learning (Fish & Dane, 2000). Kuklinsk & Weinstein reported intermediate level elementary students were able to detect slight differences in teachers' facial expressions and body language when interacting with high-achievers, in spite of teachers' attempts to minimize these unproductive behaviors. Children were also found to have an awareness of the different learning environments within the classroom between high and low achieving students. (Babad, Bernieri, & Rosenthal, 1991)

Additional research evidence shows teachers and students possess different perceptions of the classroom environment and teachers generally perceive the learning environment more favorably than students (Fraser & Tobin, 1989). Because teachers usually perceive the learning environment in more favorable terms than do their students, teachers are often unwilling to make changes they feel as irrelevant to the academic goals they are trying to accomplish (Jakubowski & Tobin, 1991). The teacher should be prepared for the possibility that student's perceptions of their teaching may vary widely from their own perceptions (Fink, 1996).

2.5 THE CLASSROOM AS A COMMUNITY

Students report that a sense of being known and of being friendly with other students leads to an improved congenial learning environment and increased motivation to

learn and participate in school (Waxman & Huang, 1996). Students who are alienated from school and learning consistently say that they lack personal and caring relationships with their teachers (Stepanek).

It is worthy to note that students' sense of responsibility to and for each other is a common characteristic of mathematics and science in Japan, and is associated with creating a climate of high achievement (Schmidt, 1996). Students and teachers who are accustomed to a competitive environment in the classroom will need time to adjust to the community approach (Stepanek, 2000).

On a wider scale, the significant differences between effective and ineffective schools based on student behaviors and students' motivation and perceptions of their classroom learning environments have been identified through school environment research (Waxman & Haung, 1986).

Neither its size nor location determines if a school is good, it is the associations within the schools that are important factors affecting the quality of schools (Cleveland, 1992). School environment research shows, students in effective schools perceived their classroom environment differently from students in ineffective schools. Students in effective schools were found interacting nearly twice as much as students from ineffective schools (Waxman, 1996).

2.6 TEACHER – STUDENT INTERACTIONS

School climate is multifaceted endeavor and how one sees a problem also shapes its definition (Freiberg & Stein, 1999) Caruther (1995) stated learning requires the

teacher to establish relationships with learners. In order to promote desired learning outcomes, positive relationships should be established between students and teachers. The establishing of positive teacher-student interactions requires teachers to set goals and necessitates informed changes in teacher behaviors (Caruther, 1995).

Positive classroom relationships are becoming more difficult to establish as growing cultural and social differences between students and teachers become points of friction (Caruther, 1995). Richardson (1997) found improving the quality of teacher student interactions helped to ensure more positive learning outcomes for all students.

The beliefs teachers themselves have about teaching and learning and the nature of the expectations they hold for students also exert a powerful influence (Raffini, 1993). Teachers who treat children more equitably are more likely to subscribe to the belief that intelligence is to some extent malleable and can be influenced through teaching (Kuklinsk & Weinstein, 2000).

Stipek (1988) noted many students were found to expect to learn if the perceived their teachers as expecting them to learn. The associations between teacher expectations and actual student learning outcomes are related not just to teacher expectations themselves, but also to the coupling of teacher expectations and patterns of teacher behaviors (Caruther, 1995).

Kuklinsk and Weinstein (2000) discovered significant differences in teacher treatment of students within the same classroom can affect children's academic,

social, and emotional outcomes both directly (through differences in curricular exposure) and indirectly (through social-cognitive reflective processes). This was for the most part true in children's interpretations of the meaning of differential treatment and their inferences about teacher expectations.

"Relationships between teacher and students are built up rather quickly near the beginning of the school year (c.f., Brooks, 1985) and they cannot easily be changed" (Wubbels, 1991). Caruther (1995) stated, "Once these student perceptions are established they are difficult to change."

Caruther (1995) discovered a single interaction between teacher and student can influence the student's perception on the learning environment and his or her readiness to achieve. Although possibly well intended, deliberate and unconscious behaviors by the a teacher that are damaging to students must not continue unchanged. Students who are alienated from school and learning consistently say that they lack personal and caring relationships with their teachers (Stepanek, 2000). One telling example of the importance of student-teacher interactions is that research has consistently found dropouts perceive teachers as not caring (Caruther, 1995).

More than 83% of students in one study who think there is good communication between teachers and students also think they have good learning environments (Cleveland, 1992). When students perceive that they are important to their teachers, they are more involved in their learning and have an increased sense of responsibility. The students also displayed a willingness to be prepared, on time, and showed an increased interest in applying their efforts to learning (Bosworth, 1995).

Learning environment assessments of teacher-student interpersonal behaviors are useful in helping teachers change their styles of interacting with students and improving their classroom environments (Fraser, 1998).

Student morale also seems to be a function of student perceptions that teachers care (Brookover & Lezotte, 1979). Where teachers take a genuine interest in students as individuals, climate and academic performance appears to be better (Sackney, 1986). Awareness of how students' attitudes and beliefs about learning develop and what facilitates learning for its own sake can assist educators in reducing student apathy and increasing occurrences of positive student outcomes (Lumsden, 1994). Attitudes and perceptions are incorporated as elements of the learning process (Stepanek, 2000). As an example, praise was found to only be effective when teachers are significant others in the lives of students (Sackney).

The social environment in which learning takes place can enhance or diminish the behaviors that lead to achievement (Caruther, 1995). Nearly 60% of the resilient students, successful students who overcame substantial social and economical difficulties, indicated that they had positive relationships with their classroom teachers, whereas only 28% of the non-resilient students indicated that they had positive relationships with their teachers. More specifically, resilient elementary students perceived a more positive instructional learning environment than non-resilient students (Pardon, 2000).

There are a range of positive outcomes associated with caring relationships in school, including higher achievement, stronger motivation to learn, greater interest in school,

improved attendance, and fewer behavior problems (Stepanek, 2000). When students become citizens of the school, they take responsibility for their actions and those of others (Freiberg & Stein, 1999). The importance of school environments perceptions by students and enhanced student performance has been well established.

2.7 SCHOOL ENVIRONMENTS

The strong association between student school environment perceptions and students' learning outcomes environment has been well established. As studied by Hall and George (1999) the climate of the classroom is nested within the school climate. When assessing the classroom environments one should acknowledge that the school climate affects the teachers' abilities to establish a productive learning environment. A positive school climate will define the quality of the learning environments within the school and stimulate teachers' creativity and enthusiasm. School climate is a multifunctional endeavor and how one sees it also shapes its definition (Freiberg & Stein, 1999).

A school is not an organic being in a biological sense but it does have qualities of a living organism in the organizational and cultural sense. Freiberg (1999) described it as like tending a garden, it takes continuous effort. He went on to state school climate is much like the air we breathe, it goes unnoticed until something goes seriously wrong. A school's climate is a factor affecting both student and teacher perceptions of the learning environment. When measuring classroom environments, it is desirable to understand the school's climate and its effect on student learning outcomes.

Creemers and Reezigt (1999) reported the differences between effective research and older top-down projects that assess a student achievement, is their attention to the situation of the teachers. Teachers struggle to solve problems that can interfere with their teaching and student learning. Too often teachers have given up on changing their environments. The understanding of school climate and its effect on the classroom is a necessary factor for improving classroom environments and thus student learning outcomes. A school environment that nurtures continuous improvement is still necessary for allowing the advancement of a teacher's professional work ethics (Freiberg & Stein, 1999).

As with classroom environment research school climate can be assessed, described and changed. The understanding of a school's climate and its effect on teaching is an important factor in understanding a teacher's ability and willingness to improve their classroom environments (Freiberg & Stein, 1999)

To change the school climate, research must specifically aim to identify those work environment variables that teachers believe enhance their work as professionals (Conley & Muncey, 1999). These variables can be identified as enhancing or detracting teachers from consistent professional growth. When all member of the school achieve consistency they create cohesion which is necessary for the development of a school wide positive learning atmosphere.

As reported by Hoy and Feldman (1999), healthy schools are better places to work and learn than unhealthy ones. Teachers are more productive, administrators are more reflective and students achieve at higher levels. When researching the

improvement of classroom environments it is necessary to assess the school environment in which it is located.

2.8 IMPORTANCE OF TEACHER MORALE

This research sees classroom and school environment research as important tools in developing positive teacher morale. How can professionals be compensated for inadequate books and supplies, large class sizes, disruptive students, public criticism, increased duties, and the lowest salaries paid to educated personnel in the nation? (Parks, 1983)

Miller (1981) noted that teacher morale can have a positive effect on student attitudes and learning. Increased teacher morale levels make teaching more pleasant for teachers and learning more enjoyable for the students. Increased teacher morale can help to establish a classroom environment that is more conductive to learning.

Kyriacou (1987) showed that stress and burnout may significantly damage the interpersonal relationships teachers have with their students and the quality of teaching and commitment they are willing or able to produce. Kyriacou defined teacher stress as, "the experience by a teacher of unpleasant emotions, such as tension, frustration, anger and depression resulting from aspects of his work as a teacher."

The most significant levels of teacher stress were identified to be those arising from lack of rewards and recognition (Smith & Bourke, 1987). The National Center for

Education Statistics found only a weak relationship between teacher satisfaction and salary and benefits. Stenlund (1995) discovered it was clearly evident teachers identified students as the paramount factor that impacted both their professional enthusiasm and discouragement. Teachers were found to universally value student responsiveness and enthusiasm as a fundamental factor in their own enthusiasm. Conversely, teachers list low motivation in students as a major discouragement in teaching.

Lumsden (1994) reported a concern is that stress may drastically impair teacher/pupil relationships, reducing both the quality of teaching and the teacher commitment to his or her students. On the basis of minimum incidence statistics pupil teacher ratios, in 1957, Kaplan estimated that stress might affect as many as 200,000 teachers and through them 5 million pupils (Coates & Thoreson, 1976). Considering the growth of student and teacher populations since 1957, the magnitude of teacher stress and its impact on student outcomes appears to be a major concern. Due to their relative isolation from other adults, teachers often have little opportunity to share their successes with colleagues and administrations. Thus, teachers have a greater reliance on student responsiveness for teachers' professional satisfaction (Goodwin, 1987) and improved morale.

2.9 SCHOOL ENVIRONMENT RESEARCH

It is sometimes necessary to separate classroom learning environment research from school level environment research (Fraser & Rentoul, 1982). A lot of school level research is indebted to theory, instruments, and methodology established in earlier works investigating organizational climates in business (Anderson, 1982).

Fisher and Fraser (1990) reported that several school level environment questionnaires were developed before 1958. These instruments, however, proved to be awkward to use and were not grounded in basic theory. It was not until the 1970's, after Moos conducted research into a variety of work environments (prisons, classrooms, and hospital wards), that grounded theory on work place environments was established.

Fisher and Fraser (1990) went on to report that Moos established three unique psychosocial dimensions to describe the work environment:

1. *Relationship Dimensions* (e.g., peer support) which identify the nature and intensity of personal relationships and assess the extent to which people are involved, and support and help each other.

2. *Personal Development Dimensions* (e.g., professional interest) which assess the basic directions along which personal growth and self-enhancement tend to occur.

3. *System Maintenance and System Change Dimensions* (e.g., innovation) which is the extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change.

2.10 SCHOOL LEVEL ENVIRONMENT QUESTIONAIRE (SLEQ)

After reviewing the difficulties associated with existing school environment instruments a new environment instrument named the School Level Environment

Questionnaire (SLEQ) was developed in the 1980's (Fisher & Fraser, 1990). The process for the SLEQ development was first reported in 1982 by Fraser and Rentoul.

The SLEQ was developed to achieve an efficient, economical, and reliable instrument to describe the school environment as perceived by the teachers working within that environment. The instrument was designed to be founded upon the before-mentioned Moos psychosocial dimensions. To further establish the instrument's validity extensive interviews were held with classroom teachers to ensure that the questionnaire items were viewed by them as relevant. Thus, the SLEQ questionnaire contained only those test items identified by teachers as being pertinent to the school environment.

Utilizing these procedures, the final SLEQ questionnaire contained eight scales (Table 2.3). Two of the scales measured Moos Relationship Dimension (Satisfaction, Affiliation), one of the scales measured the Personal Development Dimension (Professional Interest), and five of the scales measured the System Maintenance and System Change Dimension (Staff Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure).

Table 2.3
Priorities for Action in Improving School Environments

SLEQ	Priorities for Action
Resource Adequacy	Conduct a survey of resources in the school
	Develop a plan of attack: immediate, intermediary and long term
	Check and Repair already existing equipment
	Develop a plan for increased sharing of resources
Innovation	Conduct staff meetings in individual classrooms. These meetings should be rotated between the elementary and infant rooms. Time should be given for the class teacher to comment on organization, display, problems, etc
	Free teachers with particular skills to help in other rooms (drama, computers, science)
	Adopt a whole school Theme
	Attempt to "spot the innovator" (Particularly by senior staff)
Work Pressure	Have fewer staff meetings
	Use recess breaks for minor discussions
	Draw on the community for assistance with coaching sporting teams
	Provide opportunities for discussion about meeting the individual needs of children

As with the classroom learning environment questionnaires, a unique aspect of the SLEQ was its two forms, Actual and Preferred. The Actual Form measured the respondent's perceptions of their present school environment and the Preferred Form measured their perceptions of an ideal school environment.

The SLEQ consists of 56 items, seven items assessing each of the eight scales. Each item is scored on a five point Likert scale with the responses of Strongly Agree, Agree, Not Sure, Disagree, and Strongly Disagree.

Table 2.4 describes the nature of the SLEQ by providing a scale and classification according to Moo's scheme (Moos, 1974). As well, Table II provides information about the method and direction of scoring of SLEQ items.

Similar to classroom learning environment research, a five-step procedure was developed for the SLEQ's application in a proven process to improve school environments (Fisher & Fraser, 1990). The implementation steps established were:

1. *Assessment* – Teachers answered the questionnaire, both Actual and Preferred Forms.

2. *Feedback* – The answers were scored and the results summarized as profiles (line graphs) of mean school scores. These profiles proved to be a useful way of depicting data. The teachers then consider the information they gave.

3. *Reflection and Discussion* – Private reflections and discussion with peers and/or the researchers about the profiles then followed. The crucial decisions were then made about which, if any, of the dimensions of their school, revealed by the profiles, they would attempt to change.

4. *Intervention* – The teachers introduced various strategies, typically over a period of several months, aimed at improving the specific dimensions of the school environment they had chosen. Usually ideas arose during meetings of teachers and from examining individual items in the questionnaire. Most of

these ideas were specific to each school and are quite different from school to school.

5. *Reassessment* – The Actual Form was answered again at the end of the intervention period and the data added to the teacher's profiles.

2.11 VALIDATION OF THE SLEQ

Fisher, Fraser, and Wubbels (1993) reported validation data for the SLEQ using number of samples including one study of 46 teachers in seven Australian schools. The validation data included information about each scale's internal consistency (Cronbach alpha reliability), discriminant validity (mean correlation of a scale with the other scales) and the ability of the instrument to differentiate between perceptions of teachers in different schools. The alpha coefficients for the different SLEQ scales ranged from 0.65 to 0.92 suggesting that the SLEQ scale displays satisfactory internal consistency for a scale composed of only seven items (Young, 2000).

Alpha reliability, internal consistency coefficients for the SLEQ was reported on by Fisher and Fraser (1990, 1991) in several Australian studies. Information on discriminant validity for the SLEQ was report by Fisher and Fraser (1987) in relationship to internal consistency for these same studies. Fisher and Fraser concluded coefficients were agreeable and the SLEQ scales measured singular, although sometimes overlapping, segments of the school environment.

Table 2.4
Description of Scales in the SLEQ and their Classification According to Moos Scheme

Scale Name	Description of Scale	Moos's General Category
Student Support	There is good rapport between teachers and students and students behave in a responsible self-disciplined manner.	Relationship
Affiliation	Teachers can obtain assistance, advice and encouragement and are made to feel accepted by colleagues.	
Professional Interest	Teachers discuss professional matters, show interest in their work and seek further professional development.	Personal Development or Goal Orientation
Staff Freedom	Teachers are free to set rules, guidelines and procedures, and of supervision to ensure rule compliance.	System Maintenance and System Change
Participatory Decision Making	Teachers have the opportunity to participate in decision making.	
Innovation	The school is in favor of planned change and experimentation, and fosters individualization.	
Resource Adequacy	Support personnel, facilities, finance, equipment and resources are suitable and adequate.	
Work Pressure	The extent to which work pressure dominates the school environment	

2.12 SLEQ IMPLEMENTATION

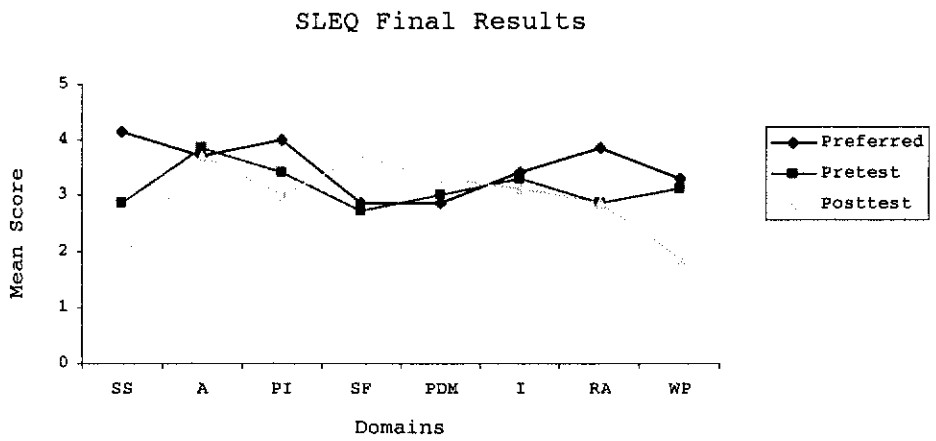
Fisher and Fraser (1990) reported on one study involving 15 teachers in a primary school. All teachers took the Actual and Preferred Form of the SLEQ. Average scale scores were computed and displayed in line graph form (Figure 2.1).

The data reflected sizable differences between the Actual and Preferred Form scores in several dimensions. During a feedback meeting, the teachers identified Resource Adequacy, Work Pressure and Innovation as the dimensions requiring immediate attention.

Small discussion groups were established among the participating teachers to discuss the dimensions identified as needing attention. Later these groups met collectively to share their small group reports. The whole group then constructed a list of the priorities necessary for changing the school environment to one more closely matching their preferred working environment.

Over the next 10 weeks the actions were implemented by the participating teachers. At the end of this implementation period the Actual Form was again administered to the teachers, this time as a posttest. Sizable changes in perceptions occurred in two areas; Resource Adequacy and Innovation (see Figure 2.1). The Work Pressure score remained about the same. The staff reported they were pleased with the research process and results.

The SLEQ has been utilized in several additional studies in Australia and the United States. Creswell and Fisher (1998) employed the SLEQ to investigate relationships between principal and teachers perceptions of the school environment. Fisher, Grady and Fraser (1995) and Fraser, Williamson and Tobin (1987) successfully used the SLEQ in their study on relationships between student perceptions of the classroom and teachers perceptions of the school environment.



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 2.1. Example of SLEQ mean scores.

The first reported study in the United States (Johnson & Templeton, 1999) applied the SLEQ to identifying specific aspects of the school environment teachers perceived as needing improvement. The relationship between pre-service teachers' attitudes and school environment change was reported by Fraser and Rentoul (1983).

Further studies on the updating and adapting of the SLEQ have been recently reported (Johnson & Stevens, 2001). It was decided that the originally developed form and implementation procedures of the SLEQ, as reported by Fraser and Rentoul (1982), met the needs of this study in documenting teacher school environment attitude change.

2.13 QUALITATIVE RESEARCH

Taking into consideration the multifaceted dimensions associated with the classroom learning environment, and the size of the sample available for this study, it was deemed worthwhile exploring the methods used in qualitative approaches to determine whether some of these approaches could enhance the findings from questionnaires. This section describes this investigation.

Qualitative research is a form of investigation that explores phenomena in their natural settings and blends multiple data collection methods to interpret, understand, and bring meaning to the data. An important strength of qualitative research is that it occurs within a setting and culture. Qualitative research is able to explore the entire context of a situation (Anderson, 1999). The principles of qualitative research have been beneficial in assisting in the documenting of the complex dimensions of educational environments.

When referring to a social problem Punch (1998) referred to the main concerns or problems as viewed by the persons interacting in the social environment. As stated by Gee, Michaels & O'Connor (1992), humans are constant creators of complex and multifaceted meanings. The qualitative research approach investigates social situations and how members of the environment deal with what they view as problems or concerns and concluded with the construction of valid theories explaining these social situations and how members of the research situation view them.

Often qualitative research in a social setting initially sees no readily apparent conceptual relationships, however it is necessary to establish a system of collecting data and an analytical process to produces meaningful descriptions from that data. Through adherence to a systematic data collection and analytic process the researcher can reliably describe, interpret, and explore the data.

2.14 QUALITATIVE DATA COLLECTION METHODS

Anderson (1999) stated that research is a complicated process that proceeds as the dimensions of the research setting interact within the environment. The impact of those participating in a culture, such as a classroom learning environment, is the major focal point for those researching the complex dimensions of social environments.

Qualitative research is one tool useful in providing the informative and reliable data that is required in bringing meaning to complex social environments, such a the classroom learning environment. For qualitative research to be viewed as reliable by those with a vested interest in the learning environment, the data must also be seen as meaningful. (Punch, 1998)

A researcher engaging in qualitative research is embarking on a journey to discover meaningful knowledge. Quantitative research is one approach that permits the researcher to go beyond observable descriptions and construct theories by systematically analyzing data. To discover valid meanings for human behaviors, qualitative research allows the researcher to look beyond what is being observed and hear what is not being said (Anderson, 1999).

Several qualitative research methods considered for use in this project are described in the following section.

2.15 GROUNDED THEORY METHOD

Ground theory is not a theory, but an approach to generate theory based on data which is grounded, or validated by the data. The theories generated are thus, inductively constructed from multiple data sources. Grounded theory is one useful method of researching complex social behaviors, like those found in the classroom learning environment. Grounded theory researchers see the data with an open mind and allow it to lead them to theories about the social environments being studied. (Punch, 1998).

In grounded theory research the data is collected and cycled, alternating inductive and deductive steps of data analysis. This continues until the data becomes repetitive or no new theoretical elements can be revealed. The outcomes of grounded theory analysis are abstract and must show a direct relationship to the empirical data to be considered valid. Thus, grounded theory data analysis emphasizes the conceptualization of data beyond the empirical level.

In true grounded theory analysis a core category will emerge from comparing and contrasting the data. Tesch (1990) sees comparisons as the central activity in data analysis. Glasser and Strauss (1967), the innovators of grounded theory, described it as the "constant comparative method." The theories developed from the data lead the researcher to construct valid, meaningful conclusions systematically linked to the

empirical data. It is important that the concepts which generate the theories are not brought to the data but constructed from it.

One concern researchers must be aware of when using a grounded theory approach is how to be subjective, interpretive and scientific throughout the research process. Some critics of grounded theory believe that this research approach does not produce a full conceptual description of all data collected. These critics point out that grounded theory is often clearer about the generation of theories than about testing them. Critics also note that this approach relies on rhetoric and language that can often be misleading. Again it is important for researchers to insure that concepts developed through grounded theory are not forced from but emerge, or are grounded, from the data. Miles and Huberman (1994) state that experienced grounded theorists should be aware of possible problems of "fragmentation and decontextualization" when constructing conclusions from grounded theory data.

2.16 RESEARCH OBSERVATION METHODS

In some qualitative studies, the researcher may observe the behaviors of the people in a social environment. This observation can be done as a detached observer, either covertly or overtly, or as a participant observer (Punch, 1998).

A participant observer becomes immersed in the environment. They engage in the regular activities of the culture and share the experiences with the participants interacting in the environment. Periodically the observer may remove them self from the research setting to establish time for reflection and then return to active

participation in the research setting. During these periods of reflection an increased awareness can emerge to allow the researcher to visualize the research situation with greater clarity.

The unfolding research begins to reveal connections between the participants' behaviors and other dimensions of the environment. These connections emerge as the research process continues to unfold. The researcher thus moves closer to the construction of conclusions and theories about the environment studied. To accomplish this project's goals it was decided that a participant observer would be used.

2.17 ETHNOGRAPHY METHOD

Another method for qualitative data collection is ethnography. Punch (1998) defines ethnography as a means to describe and understand a way of life from the point of view of its participants. Ethnography is the art and science of describing a group or culture (Fetterman, 1989; Neuman, 1994).

Researchers using ethnography methods take a liberal view of daily occurrences. They observe a social setting, such as classroom learning environments, over an extended period of time. They observe what happens, listen to what is being said, they ask questions and collect data. They record similarities and differences in the data, and construct conclusions to explain the observed social setting. Ethnography is an additional research tool to use in the collection of data and construction of meaningful research conclusions. Considering the complex culture of school

environments, it was decided that the open-minded approach to data collection ethnography employs would be beneficial for this study.

2.18 CASE STUDY METHOD

Punch (1998) describes case studies as investigating phenomenon within real life situations from multiple data sources. Quantitative survey instruments, although useful, have shown to be limited in providing in-depth understandings of social environments. The case study, when combined with quantitative survey data, has been successfully employed to provide a more complete understanding of social climates, like school learning environments.

Case studies show that concepts we learn from one particular case study may very well be transferred to other similar settings. This has been especially true and useful when investigating complex social behaviors like those in classroom learning environments. Employing case studies allows for the discovering of important environmental relationships and developing an understanding of the research setting at higher conceptual levels (Punch, 1998).

Some valid criticism of case studies do show that when standing alone, not combined with other data collection techniques, they can often produce incomplete data. It is noted that the researcher analyzing case study data should be certain not to generalize more than the data can validate. Case studies can go beyond producing descriptive data and establish valid explanations only when a systematical data analysis process is part of the research design.

The raising of data to a higher conceptual level often requires that case study data to be organized into a story line format. There is an innate storied quality to the data collected with case studies. Organizing case studies data into stories can lead the researcher to creatively interpreting the data at a higher conceptual level (Coffey & Atkinson, 1996). When case studies are combined with other proven research techniques, the stories can produce a uniquely rich and in-depth understanding of social interactions.

2.19 QUALITATIVE DATA ANALYSIS

Data validity in qualitative research, as with as all research, can only occur if a careful, detailed system of data analysis is created. There must be a logical chain of evidence documented throughout the research process. However, where numerically dependent research methods are expected to produce similar data, it would not be practical to anticipate that different, blended, qualitative approaches produce exactly identical data.

Qualitative data is collected and compared for differences as well as similarities in the data. Often these data differences will produce greater insights than large quantities of repetitive quantitative data. The comparing of similarities and differences elevates the data to a higher level of comprehension. These data comparisons are intended to lead the researcher into discovering data relationships and to construct conceptual theories which are validated by the data. (Punch, 1998)

Qualitative data analysis is a constantly evolving process. As the data unfolds it produces clear relationship patterns. The qualitative researcher must be confident that although the data may appear totally unstructured at the point of collection, patterns will emerge (Punch, 1998). It is these connections between data patterns that will allow the researcher to analytically raise the data interpretations beyond mere descriptions.

2.20 ANALYTICAL INDUCTION OF QUALTITATIVE DATA

Punch (1998) identifies three components that are interwoven throughout the analytical process, data reduction, data display, and the drawing and verifying of conclusions. Data reduction starts in the early stages and continues throughout the research process. In the early stages the data is analyzed by editing, segmenting and summarizing the data. During the middle stages general patterns and themes are identified. Finally, during the later stages of the research process the data is conceptualized and developed into abstract concepts. It is important to keep in mind that for data reduction to be effective it must not cause significant loss of information.

The second component of the analytic process, as stated by Punch, is data display. Due to the bulky nature of qualitative data, even after reduction, it must be further compressed and organized in a way that moves the analytical process forward. At this stage the reduced data is organized and displayed in graphs, charts and diagrams. Data displays can continue to be constructed throughout the entire analytical process.

The third component of the analytical process is drawing and verifying conclusions. Abstract concepts begin to develop early in the research process. However, these initial concepts tend to be tentative and inadequately conceptualized. As the analytical process proceeds and the accumulating data is further reduced and displayed, concepts will start to take on greater clarity.

This framework of analytical data analysis requires all three components, reduction, data display and drawing conclusions be employed for the meticulous establishment of a reliable chain of evidence to occur. Only then can the conclusions of qualitative research be considered valid.

2.21 SUMMARY

It is not enough to collect data; something must be done with it (Freiberg & Stein, 1999). There are several reasons that change needs to be initiated in classrooms to establish academic environments more favorable to students and to promote constructivist based teaching practices (Stepanek, 2000).

It has been hypothesized that changes in the classroom learning environment could result if teachers are involved in defining an instructional approach, identifying its characteristics, and steadying the implementation procedures and effects on their own classes (Talmage & Hart, 1977).

A valuable tool for teachers to use in changing the classroom environment is knowledge about ways of assessing and improving classroom learning environments to enhance learning outcomes (Fraser, Yarrow, & Millwater, 1997).

The learning environment is a key component in guiding students towards an interactive and constructivist approach to learning (Stepanek, 2000). Teachers can analyze and re-design their classroom environments to facilitate a constructivist, problem centered, approach to mathematics teaching and learning (Richardson, 1997). However, the ambiguity of not knowing a right answer or right procedure is scary business. Some teachers resist establishing constructivist strategies in their teaching style (Erickson, 1998).

It might not always be possible to initiate reforms in classrooms simply by providing teachers with feedback about the manner in which students perceive the psychosocial environment (Jakubowski & Tobin, 1991, p. 201). Research has shown teachers will only consider changing classroom environments when they see a need. Obtaining feedback and reflecting critically on successful research proven teaching practices may not be enough to have teachers take the risk of changing from their present teaching styles (Waxman, 1991).

Teachers should strive to create productive classroom learning environments as identified by classroom environment research (Fraser, 1998). This research project is designed to provide the opportunity and investigate the willingness of teachers to integrate theory with practical work to produce positive student outcomes and productive classrooms by assessing, describing and changing their mathematics classroom environments.

Considering the parallel development of school level and classroom environment research there are few studies linking these two fields. "In contrast to work on classroom-level environment, relatively little research has been directed towards helping teachers assess and improve the environments of their own schools." (Fraser 1998) However several studies have established associations between school-level and classroom-level environment (Dorman, Fraser & McRobbie, 1997; Fraser & Rentoul 1982).

The following chapter describes the research method used to combine school environment and classroom environment research to determine if teachers are able and willing to use student perceptions to improve student learning outcomes by assessing, describing and changing their classrooms.

CHAPTER 3

METHODS

3.1 INTRODUCTION

Considerable research and reflection was given to the various research methods available to frame this research project. It was concluded that research practice obligates the researcher to triangulate, which is to use multiple methods in order to ensure the validity of research conclusions (Mathison, 1988). This study was designed to employ the triangulating of quantitative data, through the use of student and teacher surveys, and qualitative data, utilizing teacher interviews, to construct two teacher case studies. The accumulated data were to be compared to assess, describe, and give meaning to teacher attitudes towards changing their classroom learning environments to better meet their students' perceptions of ideal elementary mathematics classroom environments.

The study's research design was developed to employ multiple data collection techniques that were established to achieve a more complete conceptual view of the learning environment as perceived by the teachers and students functioning within the classroom setting. By triangulating quantitative and qualitative data sources it was believed a more intricate, detailed view of the learning environments would be possible. Considering the complexity of the elementary mathematics classroom learning environment, it was anticipated that during the course of data convergence, that some of the data might often appear to be inconsistent and possibly contradictive

(Mathison, 1988). Thus, the project's research design was developed to anticipate, and relied on differences as well as similarities in the data to construct a clearer picture of the learning environment.

3.2 PARTICIPANTS

Two intermediate level elementary mathematics teachers volunteered to participate in the study. One teacher taught grade 4 and the other grade 5. Each teacher taught two mathematics classes each day, a morning home room class and an afternoon class. The teachers agreed to take part in the study with their morning home room mathematics class. They declined to have their afternoon classes in the study. Both teachers expressed a reluctance to take professional responsibility or ownership for their afternoon classes. This jointly held attitude is further investigated in the following chapters.

The study was conducted in an elementary school in the United States. The school's population was approximately 850 students enrolled in pre-kindergarten through grade 5 classes. The school was federally designated a Title I school based on the percentage of students (91%) eligible for free lunch. Free lunch eligibility was determined by low family income. The school's student population had a student mobility rate of 43%. For the past two years the school was rated a "D School", on an A to F scale, based on state mandated and national standardized test results in reading, writing and mathematics.

3.3 DATA COLLECTION

This project utilized the *School Level Environment Questionnaire* (SLEQ) (Fisher & Fraser, 1990) in both the preferred (Appendix A) and actual (Appendix B) forms to assess teacher perceptions of their present school site. The SLEQ measured the teachers' perspective of the school environment in eight scales, Student Support, Affiliation, Professional Interest, Staff Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure. The preferred form of the SLEQ measures the teachers' perceptions of their ideal school environment. The actual form measures the teachers' perceptions of their present school environment. The SLEQ was selected because it is a proven, reliable instrument to measure teachers' school environment preferences and perceptions, as discussed in Chapter 2.

The classroom environment questionnaire, *My Class Inventory* (Fisher & Fraser, 1981) in both preferred (Appendix C) and actual (Appendix D) forms, was used to assess student perceptions of their mathematics classroom environments. The MCI records the students' perceptions of their classroom environments on five scales, Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness.

Numerous measures have been developed to draw on younger and older children's perceptions of key dimensions of the classroom environment (Fraser, 1998). The MCI is one measure that has proven to be useful in assessing elementary level environments with a minimum of fatigue to younger students. The questionnaire was developed to be economical in terms of administration and scoring (Fraser, 1999). The MCI was chosen for this research project because it was an established practical

instrument producing a manageable amount of data for teachers receiving their initial exposure to classroom environment research.

Although updated versions of the MCI continue to be developed, the original version was seen as meeting the particular needs of this study. The intended use of the MCI quantitative data was for initial teacher introduction to the complex aspects of the classroom learning environment. To maintain teacher enthusiasm and willingness to actively participate in the study it was seen as important that the MCI data be informative, but not overwhelming. The MCI was used as a catalyst to initiate reflection and conversation with teachers not familiar with classroom environment research. The MCI was intended to be used to identify specific dimensions of the classroom learning environment and enlighten the teachers to their student perceptions of these dimensions.

3.4 OVERVIEW OF METHODS

The following is a basic overview of this project's methods. Teacher interviews, both formal (audio recorded) and informal (transcribed; not audio recorded), were conducted throughout the project. Question strategies were designed by the researcher to obtain background and deeper understanding related to the quantitative data collected from the SLEQ and MCI questionnaires. Utilizing these periodic interviews allowed the teachers and researcher to make informed adjustments to the methods and procedures as the project evolved.

Table 3.1
Research Project Timeline

Month	Process
August	Initial Interviews
	Background Information
	Introduction to Classroom Environment Research
September	Beginning of the Research Process
	Pretests Administered (MCI & SLEQ)
October	Pre- and Post Result Conferences
Mid October - April	Interventions and On-going Interviews
Late April	Conclusion of the Research Process
	Posttests Administered (MCI & SLEQ)
May	Final Interviews

Initial interviews were held separately with the two participating elementary school teachers in late August. The teachers were informed that the goal of this research was to improve student perceptions of their classroom environments and thus increase the occurrences of positive learning outcomes. The teachers were given an overview of classroom environment research and its affect on student outcomes by the researcher. The teachers were not made aware that their comments and opinions on the importance of students' learning environment perceptions were an important component of this research project. Table 3.1 provides a summary of the research approach to this study.

During the initial interview, professional background histories were collected from each teacher. The teachers were asked how long they had been teaching, how long they were at the present school site, and their highest academic degree held. They were asked for general comments on career satisfaction and future career goals. The information was recorded in each teacher's developing case study.

The SLEQ, for teachers, and MCI, for students, preferred forms were administered during the end of September. The actual forms, of the SLEQ and MCI, were administered two weeks later. To minimize any effect differences in student reading abilities might have on the data, both forms of MCI were read to the students by the researcher. To ensure more objective student responses, each teacher was asked to not be present when the MCI was administered to their classes.

To accelerate the projects initiation, two interventions were implemented before the MCI data was compiled and reported to the teachers. These interventions were designed to assist in establishing improved teacher-student interactions by improving communication, creating a student sense of being known, and establishing an atmosphere of student equity. From reviewing previous research on the use of the MCI, it was evident that intervention goals were common to most projects.

First, a system of minimizing teacher dependence on favorite students was introduced. The teachers were given index cards and asked to have the students write their name on each card. The teachers were asked to use these cards in sequential order when eliciting student responses. Occasionally the cards were shuffled since the students proved to be adapt at memorizing their order. The researcher felt this strategy would help assist in establishing a sense of equity among the students.

Second, to establish students' perceptions that they are important to their teacher, the researcher developed a student data collection form, *All About Me* (Appendix E). This form was to be completed by the students and reviewed by each teacher with the researcher. The researcher suggested that the teachers to utilize this information when interacting with the students in both formal and informal situations to increase the students' feeling of importance in the classroom learning environment.

During the months of October and November periodic formal and informal interview sessions were conducted with the teachers. The researcher utilized these interviews to share the MCI data, gauge the teachers' participation in the research project and develop continuing strategies to address discrepancies between the students' preferred and actual perceptions of their learning environments. Comments and discussions about specific student data, interventions, and general observations of the teachers were again transcribed or recorded on audiotape. The researcher continued to compile these data in the teachers' developing case studies.

After the beginning of December it became increasingly difficult to schedule formal interview sessions. Both teachers cited the administrative mandated grade level, faculty, and testing meetings as dominating their instructional and non-instructional time. The researcher was able to maintain short informal conversations with both teachers over the next three months. These interviews allowed the researcher to suggest further interventions, elicit project feedback and maintain teacher involvement. These short informal conversations, although not considered optimal for data collection, proved to be quite useful considering the on going teacher unwillingness to schedule formal interviews.

During the first week of February, the researcher attempted to introduce further interventions to improve student-teacher interactions. This approach was designed to address the teachers' SLEQ discrepancies in the Student Support domain and student discrepancies in the MCI domains Friction, and Cohesiveness. These proposed interventions were met with some reluctance. A more detailed explanation of this is reported in the Results chapter.

In late April, the participating teachers completed the SLEQ actual form as a posttest. The students were also administered the MCI actual form as a posttest. The posttest data were accumulated and arranged by the researcher, in table and line graph form. The accumulated data were used to identify changes in teacher and student perceptions when compared with the pretest data collected in September. Similarities in students' and teachers' perceptions were noted and detailed for further discussion by the researcher with each teacher.

I conducted final interviews with each teacher in May. The compiled data from the MCI and SLEQ were presented to each teacher for observation and discussion. Special interest was given to the posttest data similarities between the teachers SLEQ data and the students MCI data. Frank and open comments were encouraged. The final interviews were recorded and compiled in the teachers' case studies. Transcripts of these interviews are provided in Appendices I and J.

3.5 SUMMARY

I amassed and organized all data collected during the research project. The results were organized by quantitative and qualitative sources. The data were then

triangulated in an attempt to give more in depth, meaning, and reasoning. The data were compiled and written into two case studies that are reported in the following chapters.

CHAPTER 4

MARY: THE FOURTH GRADE TEACHER

In late August, an initial interview was conducted with the fourth grade teacher, Mary. At this meeting background information was collected.

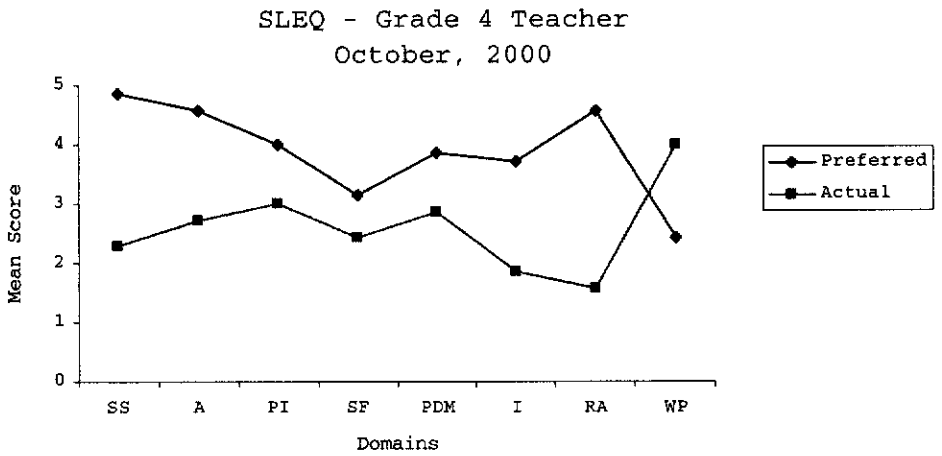
Mary informed me she had been teaching for seven years and was starting her second year at the school site. She told me that she had experience in teaching grades kindergarten through grade 5 as both a full time teacher and as a substitute. Her highest degree earned was a Bachelor of Arts in Liberal Studies. She held state certification in Elementary Education (1-6) and English for Speakers of other Languages (ESOL). She went on to say her father was a retired principal, her mother was a retired classroom teacher, and her sister was an elementary school teacher.

When Mary was asked if she felt she had the power to significantly improve student outcomes she responded, "Significantly, no." She went on to say that the major obstacle to her improving student outcomes was the, "lack of parental support." Mary stated she enjoyed teaching but would consider changing professions if the opportunity presented itself.

Mary was given a copy of the School Level Environment Questionnaire (SLEQ) preferred form with instructions on how to complete it. She was asked to return it as soon as possible. The completed preferred form was returned several days later. One

week later she was given instructions on filling out the SLEQ actual form. She returned the SLEQ actual form a week later.

The SLEQ data were computed for both the preferred and actual forms. The data was converted into mean scores for each of the SLEQ's eight dimensions. Using these mean scores a comparison line graph was constructed (see Figure 4.1).



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 4.1. SLEQ mean scores for grade 4 teacher.

All dimensions of the SLEQ showed discrepancies between Mary's preferred school environment and her perception of the actual environment. The discrepancies between preferred and actual scores in Resource Adequacy, Student Support, and Work Pressure were chosen by me to be the focus during the next interview. I believed these dimensions to be more closely related to the My Class Inventory (MCI) dimensions. The areas of Affiliation, Innovation also showed noticeable discrepancies, but I decided these dimensions would be addressed at a later time.

Smaller differences were seen in the dimensions Professional Interest and Staff Freedom and I determined these dimension would not be directly addressed in this project.

An interview was conducted with Mary in early October to discuss her SLEQ data. Mary was shown a line graph of her preferred and actual data. These results were then examined and discussed in detail. During this meeting, Mary appeared most interested in the Work Pressure results. My questions were then directed toward this dimension. Mary said she felt work pressure because, "a lot has been added, nothing taken away." She went on to say when anything went wrong, "You're blamed for it."

When asked where she felt the pressure was coming from, the state, district or school site administration, she said, "It funnels down." Asked if her SLEQ preferred and actual data were more similar would she be a more efficient teacher she stated, "Oh sure."

Due to time restraints the Student Support and Resource Adequacy dimensions were not directly addressed at this meeting. However, Mary's ongoing comments about the lack of parental support appeared to reinforce her Student Support data. I decided to leave the Resource Adequacy questions for a later interview. The interviewer then moved on to discuss the MCI survey that was scheduled to be administered to her students during the next two weeks.

Mary asked, "What are some of the questions you ask? Is it simple enough?" Mary was given a copy of both the actual and preferred forms of the MCI. After reviewing

the MCI forms she had several additional questions. "Where is parental involvement? Will you be reading the list to the kids?"

She expressed concern regarding the low reading levels of all her students. She was informed that I would read the questionnaire to the students. She was then asked if she believed the students would understand the meaning of the word "pupils". She stated, "Every word will confuse them." The next interview was scheduled in two weeks to discuss the results of her classes' MCI results.

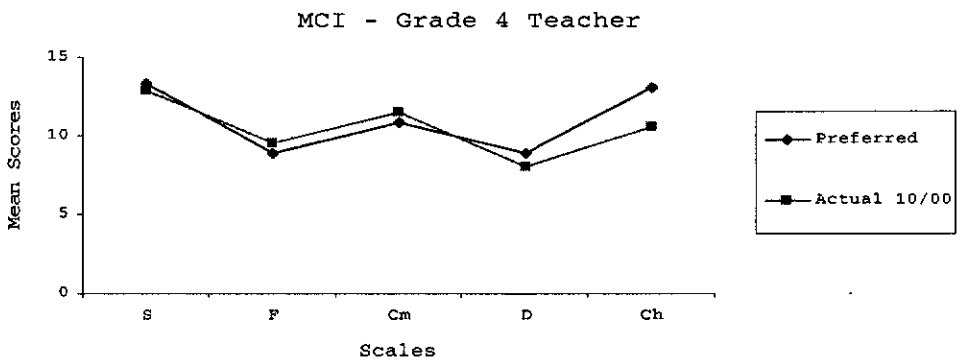
The MCI preferred form was administered to Mary's fourth grade mathematics class during the second week of October, six weeks after the school term had begun. The MCI actual form was administered to the same class one week later. I read both forms of the MCI to her class.

The class data were computed as mean scores for each of the MCI's five dimensions and a comparison line graph (see Figure 4.2) was constructed to display the data. Comparing the preferred and actual data in the Friction, Satisfaction, and Competition dimensions showed only slight discrepancies. Marginally greater differences appeared in the Difficulty and Cohesiveness dimensions. In general, I felt the data showed, that the students perceived Mary's mathematics classroom favorably compared with their preferred classroom environment.

The MCI results were examined, explained, and discussed with Mary at the next meeting in late-October. In an attempt to establish a positive interview atmosphere, favorable student perceptions were discussed first. She was told her class appeared to

find their actual classroom environment as they preferred. She responded, "I'm glad to hear they found my class is basically what they want." I then continued interviewing and asked for her comments on the MCI data collected.

The first dimension examined was Difficulty. Mary was shown the student data display in a line graph. I pointed out that the data showed that her students found the class slightly lower in difficulty than they preferred. She said, "You're kidding." She was asked to what she might attribute these student perceptions. She said, "My theory, they (students) put forth effort, even if they get it wrong. I see effort as the main thing." She went on to say she believed that her students became confused on these questions. Mary thought they equated increased effort with academic difficulty.



S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

Figure 4.2. MCI mean scores for grade 4 teacher.

I explained that the class found more friction in the class than what they preferred and she said, "So do I." After observing the competition score she contradicted the data by saying, "There is no competition in my class." Mary dismissed the results

completely. She appeared quite vehement on this point so I moved on to another line of inquiry.

The other areas showed little of no difference in preferred and actual scores. Since the class actual and preferred data showed similar expectations Mary was asked to select specific students who she felt were not achieving well in her class. Mary was told these selected students' data would be examines to better understand their perceptions of her class.

Mary was less than enthusiastic about this strategy. She commented. "But also remember my kids, I feel, should (all) be doing better. (They are) not meeting their potential. A lot of it has to do with home life, expectations, there, not with me." These comments and her Student Support data appeared to show she had strong opinions about the students' home environments and their effect on improved student outcomes.

In closing the interview, Mary was asked for any other comments about her classroom data. She went on to say, "I find it interesting, but it doesn't mean things are going to change, or it's going to do anything." I decided to end the interview here and encouraged Mary to reflect on the data. She was given copies of her MCI data in graph and table form. The next interview was scheduled for the following week.

Overall, I felt Mary's students perceived their classroom environment in a positive manner and I also concluded that the SLEQ data clearly showed Mary perceived her present school environment less unfavorably than her students perceived her

classroom. These data were utilized to develop questions for exploring during the next interview session with Mary. Special attention was made of Mary's strong opinions in planning future interviews.

The next interview with Mary was conducted in mid-October. In the previous interview Mary had commented how there was no competition in her class. This comment seemed particularly interesting to me when I considered her students' high mean scores in the competition dimension on both the actual and preferred forms of the MCI. Therefore, I planned a questioning strategy that would explore Mary's thoughts on her MCI competition dimension scores. This questioning strategy attempted to lead Mary into giving more validity to her MCI results. Mary was asked for comments on her students' high mean scores on both the preferred and actual forms, of the MCI, in the competition dimension. She explained:

> My competition and what they are talking about? The day you gave the test one of my students went to the Team (a class for high achievers) and so the kids perceived Team as being smart kids.
>
> I'm sitting there trying to let them know they are just as smart and what I told them was to be in Team doesn't mean that they're smarter than you guys. It means they are all on the same level. I was wondering if you gave the test (MCI) on a different day would it change the results.
>
> Because, there really is no competition in my class.

Mary was asked what relationship she believed competition had on student achievement. She responded:

> Negative, it depends sometimes competition helps a child, you know, come up to what they need. I know my kids, as for as them being low scares them because they don't feel like they can match another person's abilities. So I try to have, even if we do competition, it's not individual. It's a not where the child is standing out, it's more a group thing.

Mary was asked if she believed her students would achieve more if she increased the number of cooperative learning lessons and decreased the number of competitive activities. She responded, "Oh, yes." Mary was asked if she believed children needed to be taught the benefits of and working in cooperative groups. Then I asked whether children should be taught how to do this. She explained, "Yes, competition is brought on by the parents. They want their child to be the best." When asked if she used cooperative groups she said, "All the time, all the time."

Mary was asked if the students' home life might be a contributing factor for their high scores in the competition dimension of the preferred MCI questionnaire. She now answered, "No." I then asked if the competitiveness might be a necessary survival skill in her students' home environment. She stated:

> Well, are you about talking survival or competition? They are different things. Survival, yes, most of the time, these kids are faced with that.

I asked Mary to comment on particular students and their MCI scores. In particular, I referred to one student whose MCI data indicated she preferred a class high in friction and competition. She said this child was, "average, she's having difficulty with timed tests. Is that considered competitive?" I commented that some people might think so. Mary responded, "Well then, hello, I take that back, I have a very competitive class."

At this time I asked Mary to comment on her perceptions of low student support as indicated in her SLEQ Actual score. Mary was asked to give an example of where she felt less student support than preferred. She stated:

> I don't even worry about giving them an *F* (failing grade) in my class because I'll have almost no parental response. When I give an *F-3* (poor effort) or whatever to get a parent in here, I'm not going to get a parent in here.

Mary was asked if any specific students came to mind whose outcomes might improve if she had more student support. She mentioned two girls and stated, "I think they have problems at home."

Mary was asked if she had a student whose home environment could cause less than preferred student support, but who she believed she was able to help. She commented on one male student:

> He is not doing what he could. Home, Dad works, parents are divorced. He is watched by an older brother. This child was making F's at the beginning

> of the year. I knew he was capable (looking at his grade book) ah, let's see he's not doing that bad. Look, after I had a conference with his dad, the fifth week of school, then he started doing A, A+, A+, A."

Mary was shown this child's MCI scores and I pointed out he seemed to find her classroom environment as he preferred. She responded, "He didn't answer it (MCI) right." Mary was asked if she believed he was able to decode the survey, thus giving answers he thought she wanted to hear. She stated, "He's not smart enough." I asked if it was possible she had made him perceive her classroom environment favorably. She said:

> Oh, I'm sure he is he should be. I'm not saying this to prove myself but most of my kids should be happy in my class. Because I try to, I mean I don't demean the children and I think that helps a lot when it comes to the kids liking my class. But, I, you know have a lot of problems.

Mary was asked if there are any obstacles in addition to lack of Student Support that prevents her from meeting student needs. She mentioned another male student in her class. This student was only in her class part time and in a Learning Disabled (LD) class the remainder of the school day. She was shown his MCI data which indicated her class was similar to one he preferred. She commented, "(male student) is LD, I don't know if that's the politically correct thing to say." When asked if he was academically successful she said, "No." She was then asked if he was a behavior problem. She stated:

> No, he's not a behavior problem to an extent he will withdraw. When he can't do the work, which is often, he puts his head down on his desk. He starts to cry. You know he kind of refuses to do his work. Even when I put him in cooperative groups and he can choose who he wants to work with. He still, you know, still can't handle it.
>
> I've tried to boost his confidence I tell him, you know, he tells me a response orally, and then I'll say, you know, tell them what you just told me and he'll tell them. I'll say to them find it in the book and you can write it together and he'll start and then stops.
>
> Now he's gotten a little better. But there was a point I had to go to his LD teacher to see if she had a problem with him.

Mary was asked if she felt increasing successful academic experiences and minimizing unsuccessful classroom activities for this child would help to improve his academic achievement and behavior. She commented:

> I don't see that as a progression. What I'm saying, I don't look at it as time gone by and he'll be successful more and more. He's going to struggle and any time we do anything that requires any form of reading or comprehension, he's not going to get it. Now when I do hands-on activities he'll do it.

Mary was asked if it was possible for her to increase the amount of hands-on activities for this child. She said, "I try to do as much as I can. How much can you do? I think he needs to be in LD all the time."

Mary was then asked about another student whose MCI data showed he found her class much more difficult than he preferred. Her comments were:

> Honestly I don't know. He's a puzzle to me. I'm having some problems as far as behavior, but not blatant. He will be spitting in line. Sometimes he works, sometimes he is a mouse. He's got F's.

Mary was informed this child's data appeared to show he was uncomfortable in her class. She said, "I didn't know he was uncomfortable, he doesn't seem that way."

Mary was asked about a female student whose MCI data showed she preferred an environment high in Friction, Competition, and Difficulty. She said of this child:

> Average, she was crying. Her mother said the other teacher (afternoon) yelled at her. The teacher was yelling at the whole class. Mother was more concerned with this teacher's race.

Mary was asked if this student could be doing better academically. She responded, "Oh, sure." Mary was asked if she felt she had the ability to improve this child's academic outcomes. Mary then stated:

> No, I don't think I can help her do better academically. I can make her feel better about herself and respond more often. I'm working on third grade material and they still don't know it. So, if they still don't know what else can I do?

This interview was then concluded. I attempted to schedule another interview in November. Mary asked if the next interview could take place after testing, in early March, since she was so overwhelmed with testing pressures. I then asked if she would periodically implement some simple classroom strategies that would be suggested. She agreed, with the condition that the strategies did not interfere with her test preparation.

Over the next few months, Mary was not as enthusiastic about her participation in the project as I would have preferred. She appeared to be concerned the project was interfering with her classes testing readiness. I anticipated that Mary's enthusiasm would return after the standardized testing was completed in March. Therefore, I decided to continue on with Mary's participation. Until March, Mary was asked for her comments in unscheduled, informal conversations.

The next conversation with Mary occurred in November. The first intervention was introduced to document Mary's expectations of her students' mathematical abilities. Mary was asked to give each of her students an index card and have them write their names on the card. Mary was to collect the cards and next to each name write her opinion of the child's mathematics ability. She was asked to write a "R" for remedial, a "B" for basic and an "A" for advanced. Mary dismissed this intervention by saying, "All my students are all remedial."

In January, Mary was again asked to have her students to write their names on index cards. It was explained to Mary she was to collect these cards and use them in sequential order when calling on students during questioning periods and when

requesting students to perform special tasks. Mary was informed this intervention was designed to reduce her dependency on target students and increase the students' sense of equity. She again refused to participate saying, "I already call on my kids equally."

In late January, Mary was asked again to implement a intervention that I developed. She was asked to have her students complete a form entitled *Exit Survey* (Appendix F) near the conclusion of her mathematics class. She was informed this was to develop a student sense of their opinions being important to the teacher. She agreed to have her students complete the form.

Two weeks later I asked Mary for her comments on the *Exit Survey*. She stated she had the students complete the form but, "I really, you know, don't have time to review them."

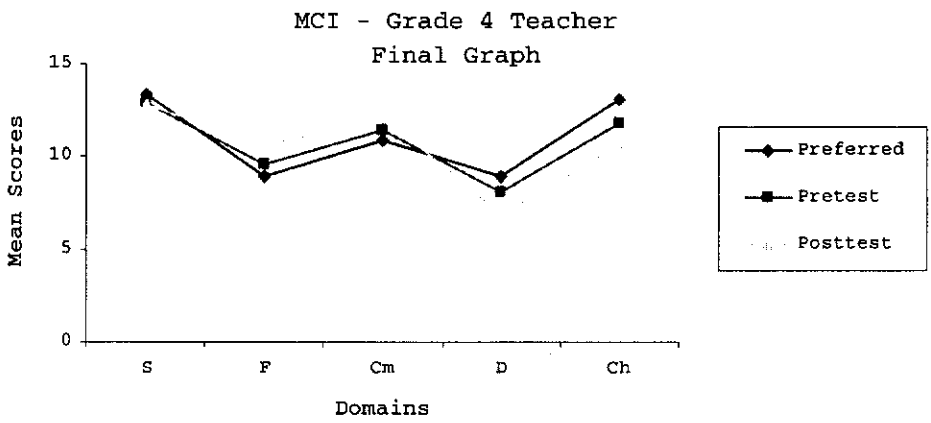
In April, Mary was asked to have her students complete a form entitled *All About Me*. She was asked to collect the form and review her students' responses. Mary was encouraged to then use the information in future teacher-student conversations. She was told this strategy was designed to have her students feel a stronger sense of importance to the teacher. Mary agreed to use the form. However, she told me she used a better form and had her students fill it out in September.

After administering the actual form of the MCI and SLEQ as a posttest in late April, a final interview was held with Mary during the second week of May. First, she was shown her final MCI data (see Figure 4.3) and final SLEQ (see Figure 4.4). Mary's

class appeared to, as on the pretest, find her class pretty much as they preferred. In order to continue the interview on a positive note I pointed out that the data appeared to show her students found her classroom environment favorable and close to their preferred learning environment.

It was pointed out to Mary that the MCI graph showed her class perceived slightly less difficulty on the posttest than the pretest. She was asked if she believed this perception was a valid one. She responded. "Maybe it's because they're getting used to it." I then asked if she felt her class knew what they were doing in mathematics. She then commented on their reading difficulties and also mentioned the mandated commercial mathematics program being used at the school. She said:

> My kids? My kids know the problems. Remember, we had to do all that (mathematics program) so the problem with it you're not really teaching like you normally do. You're just basically doing and giving an answer then going. So I think (mathematics program) kind of threw them. So, once we started off the (mathematics program) and started, you know, like when you did that test (MCI final) is when they started learning their long division, which is very difficult for them. So I have a feeling that is probably one of the things. If you had caught it a week before, it wouldn't have been so bad.

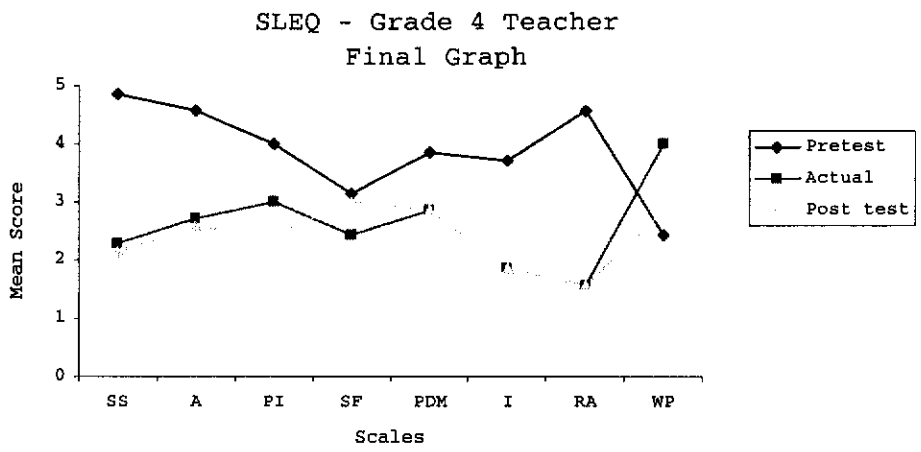


S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

Figure 4.3. Final MCI mean scores for grade 4 teacher.

I decided to readdress this issue later in the interview since Mary seemed somewhat confused about the D results. She was asked to look at her MCI data line graph and see if any of the results surprised her. She responded, "No."

At this point Mary's SLEQ final data graph (see Figure 4.4) was shown to her. She was given several minutes to view the data. Mary was told her SLEQ data appeared to show she perceived the school's environment lacking in seven of the eight dimensions when compared with her preferred school environment. I chose to now discuss her SLEQ Student Support dimension scores. It was believed discussing this dimension would produce comments related to her students' MCI perceptions of her classroom environment.



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 4.4. Final SLEQ mean scores for grade 4 teacher.

Mary was asked if she viewed her SLEQ Student Support results as valid. She said, "I still agree, I don't have a lot of student support." Mary was asked if she experienced a lot of student to students' conflicts in her class. She commented, "We had a couple of new students that came after the school year started. They changed the make-up of how the children interacted with one another." She was asked if there was anything she could have done in her classroom to decrease negative student behaviors. She stated, "Ah, I don't know."

I asked Mary if she utilized the school's Peace Education Program to address student conflicts. She commented:

> No, because there is, I have conflict resolution in my classroom. But that's me doing it. That's not the kids being able to do it themselves. These kids have a tendency to react first. They don't think before they react and that's something I've been having a very hard time with as far as getting them to

> understand, you know, with words. They don't have to worry about someone saying something to them. They can ignore it, walk away and it's just very difficult. You know, someone says something about their mother whether it's true, they go off.

Mary was asked about of her response to question number 49 on the SLEQ actual "Very strict discipline is needed to control many of the students." I believed her response, to neither agree nor disagree, appeared to contradict her overall Student Support score. Mary was asked to comment on this response. She stated:

> Because, when they say, "many", if you said students "are" or "some" I could probably answer better. Again where it says strict there's a plan. I'm very, I don't want to say anal, I look at the wording and one little word can change my response. So to me I don't think you have to have strict discipline to control your students.

> I have discipline, my class is disciplined. But I'm not strict. But they know what I require of them. I'm more a reward kind of teacher. Then I am a consequence kind of teacher. But there are consequences as well. But my kids aren't standing there holding books in their hands in the corner. I think they can be under control with love as much as, you know harshness.

I asked Mary about her response on the MCI actual question number 12, "Many pupils in my class like to fight." Mary was asked if she believed her students would interpret "many" similarly to the way she did "strict" on the SLEQ question number 49. Mary said:

> I'm sure, yes, because with them "many" could be four kids. They're dwelling on those four children. They are always going to be the problem and to them that's many.

Mary was asked if she had any physical fights in her class this school term. She stated, "No, no, I think the question should be changed to argue and then physically fight." She was asked if she believed her students liked each other. She said:

> I think in general, again there are three or four students who cause problems with everybody. I think most of time my kids get along with one another, try to help each other out.

Mary was asked if there was anything else she could be doing in her class to increase her perception of student support. She responded, "No, but not that I'm not willing to take advice." I asked if she felt using the Peace Education or similar program might assist her in developing a greater sense of student support. She commented:

> Yes I do, but I do teach that, but not through literature or a piece of information and whatever. This is something I show by example.

Mary was asked if she did decide to use the Peace Education program would she be able to fit it into her instructional schedule. She then said:

> No, not in fourth grade, if it was started earlier, we're talking kindergarten. It should be you move up then by the time they're in fourth grade the problem is already dealt with. Then you can basically do just review

> situations. But, with fourth and fifth grade and the (state standardized test) and everything else, you know, things like that fall by the wayside. Same thing as science and social studies, it's something that's not done.

Mary was asked if she could chose between the special mandated academic programs and the Peace Education program to implement in her class, which would do more to promote positive students outcomes. She responded, "Peace, oh sure."

Mary was then asked if she was able to minimize the pressures the standardized testing, special academic programs and other peripheral influences had on her ability to teach the mathematics she believed was important. She stated:

> No, they are negative, to me if you want to hold a teacher accountable then what you have to do is give a test in the beginning of the year and give the test at the end of the year. See if there's an improvement from the beginning to the end. If there's growth you've done your job. If there is no growth then is this child being tested or referred (to be tested).
>
> But to sit there and give a test that counts only one year and not any other year that is just absolutely asinine. It just blows my mind and all the people are saying; oh, now teachers have been held accountable." All the schools that have gone from a "F" to "B" or "F" to an "A", they had more money pumped into their school, less students per teacher and they worked on Saturdays and after school. So what they are basically saying is a teacher who works your normal hours, you can't get the job done.

Mary was asked what stops her students from being more academically successful. She stated:

> I think it's the way they feel about themselves in their environment. A lot of these kids have such low self-esteem that they tend to shut down. They tend not to want to be noticed and if their smart as can be they just sit there. They don't want anyone to pick on them or feel anything, you know, or say anything. It's very difficult.

Mary was asked if she perceived more student support, would her students experience increased positive outcomes. She said:

> That's hard for me to answer because I think that, again I don't want to sound like I'm praising myself, but to me my kids that have potential are reaching it. Even the ones that are low I think have improved but they're not going to improve academically because they're actually, should be (special education students). They haven't been tested.

Again I inquired if there was anything Mary could have done to improve her perception of student support. Mary commented:

> Again, I don't think it's something that could be done in one year. It has to be something that is started at an early age and continues. It's the same as anything, you know, like with teaching (other academic curriculums). You don't start in the fourth grade you start in first grade. You build from a foundation and that's the problem, you don't build the foundation. You can't do everything yourself. You can't teach a child to have high self-esteem.

> You can't teach a child what is proper behavior when they haven't seen it in four years.

Mary was asked if she perceived more student support at the other school she taught at. She said, "Oh yea, but that also coincides with parental support."

She was asked if teaching at the school site for several more years could change her student support opinions. She said:

> Well, my standards don't change from the school I'm at. So what I expect from a child to be is the same here as (school name). So to me you either have manners and are respectful or your not. A lot of the kids here don't know how to be that way.

Mary was shown her low Resource Adequacy perception scores on the SLEQ actual form. She was asked if this was mainly due the school's library/media center. She commented:

> Yes, I said it before. The problem is the kids don't have the resources. I'm bringing in my own books for the kids to read. Videos aren't allowed, I'm sorry, I teach science through videos and hands-on demonstrations. I don't have any of that. I have to spend my own money to do science projects or any kind of demonstrations. I don't have that kind of money, when we're allowed to teach it.

At the school site, administrative permission was necessary before a video of film could be shown in the classroom. A form needed to be filled out and signed by an administrator. Since she said, "Videos aren't allowed." Mary was asked if she had ever been denied a written request to show a video. She responded:

> No, I haven't shown a video this year. I haven't even tried because there's too much bureaucracy and red tape that I don't want to even deal with.

Mary was asked if for example she needed a tape player could you get one. She said, "Mine was stolen." She was asked if she could obtain another one from the media center. She said, "They don't have any." She was then asked if she could borrow a tape player from another teacher. She the commented:

> Oh, yea, no, no, you see what I had was all these books on tape and everything else. When they broke into my room for the fourth time and nothing was done, I took all, I was afraid they were going to damage my stuff, so I took all my books home, my tapes home and that was it. The kids are the ones that suffer unfortunately.

Mary was asked if her classroom was in the permanent building would she possibly have higher score in the Resource Adequacy dimension of the SLEQ. She said:

> Oh sure, I have no internet access. I have no computers. I've got all of these computer programs at home that I bought when I was at (another school). I have and it used to be a part of my reading centers. They would have a computer and you know they would go on there and do all that.

I showed Mary her scores in the Work Pressure dimension of the SLEQ actual form. On the pretest her scores appear to show she felt considerably more Work Pressure than she preferred. The posttest shows she perceived considerably less work pressure I April. Mary's perceptions appear to have come closer to her preferred levels for work pressure. She was asked to comment:

> Ok, don't ask me why. Oh, no you know why, probably because in the beginning of the year I'm getting to know my children. I'm nervous about parents and everything else, trying to get everything done. In the beginning of the year and as time goes by I know my kids. So, I know what I can do and can't do and it's not a big deal.
>
> You know on those questions, I got to tell you, those were, I don't want to say poorly worded, but the problem is there is no work pressure here. No one seems to care.
>
> The pressure is on myself. Not what the school expects of me, but what I expect of myself.

I asked Mary if her work pressure perceptions might be related to her experiences at other school sites. She said, "Probably, oh God yes." Mary was asked if there should be more or less work pressure at this school:

> Probably more but in a positive way, a constructive way, not just here's some more work load on you, get this done kind of thing. That's like the whole thing with (mathematics program). I got my little pile over there of all

> the tests they did. You know, no the point is nothing was ever said about it. I had no analysis. I didn't have anybody going over it telling me what to do. It was to me just the biggest waste and now the problem is we went up eight points in math. I'm wondering if he's (principal) going to say that's all (mathematics program).

She was then asked if she believed more administrative work pressure at this school would have a positive effect on student outcomes. She said, "No, negative."

Mary was informed that some research showed students have a valid perception of their classroom environment after one or two weeks in a new classroom. She was asked if she agreed with this assumption. She said, "Yes, it probably doesn't take that long."

I went on to say that some research also shows students often have a more realistic perception of their classroom environment than their teacher do. She was asked if she thought her students held a valid perception. To this she commented, "I don't think so in the elementary school. I think in the higher grade levels yes, you're probably right." of her classroom environment.

Mary was now asked some questions about classroom environments in general. She was asked if she has though more about her own classroom environment since the beginning of this project. She said, "Sure, I felt I was super teacher, so I felt positively.

The final question to Mary was her opinion of people who say teachers are too quick to blame children for their classroom difficulties. She stated:

> I don't blame the children. I blame the environment and not being able to get these children help. How long does it take for a child to be tested? Two years, I think that's a little asinine. I'm sitting here waiting for a child to be placed (in a special program). They can't read at a pre-primer level, yet are expected to do fourth grade work and I'm expected to teach them that. That's not their fault.
>
> These kids need counseling instead of just sitting there. This thing from (the state department of education) if a teacher gets killed the teacher's family gets the money. Why not take that money and have counseling sessions and not with the kind of counselor we have. It's one counselor for the whole school. Have small groups of children who get actual counseling everyday. One half an hour everyday, whatever it is so that they can express themselves. That would change the destructive behavior too.
>
> People don't think about the children and I just don't get it, everyone is supposed to be concerned and no one seems concerned.

Mary was thanked for he cooperation and informed her active participation in the research process was concluded at this time.

In the next section the fifth grade teachers' case study is recorded.

CHAPTER 5

JOHN: THE FIFTH GRADE TEACHER

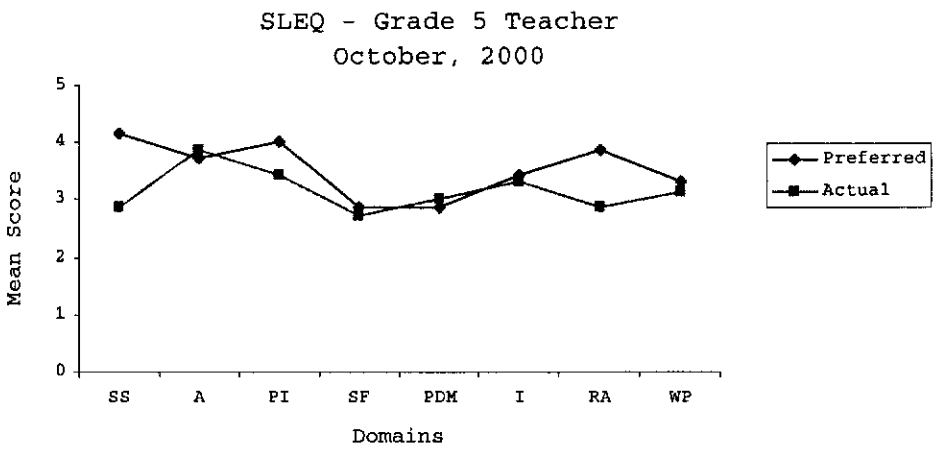
In late August an interview was conducted with the fifth grade teacher, John. At this meeting John's professional background information was collected. John informed me he had been teaching for four years and this was his first year at this school site. His previous three years experiences were teaching fourth and fifth grade mathematics and science. He stated he enjoyed teaching but would consider a career change if the opportunity presented itself. He held a Masters of Science in Urban Education and he was currently enrolled in an Urban Planning PhD program at a local university.

When asked if he felt he had the power to make significant improvement in student outcomes in his present position he stated, "No." I asked what John believed was the number one obstacle to improving student outcomes. He responded, "The students' home environment."

John was given a copy of the SLEQ preferred form and instructions on completing it. He was asked to return it as soon as possible. The completed preferred form was returned three days later. He was given the SLEQ actual form to fill out one week later. He returned the actual form the next day.

The SLEQ forms were scored and the data was computed into mean scores for each of the eight dimensions. The mean scores were then displayed in a line graph (see Figure 5.1).

John's SLEQ data showed discrepancies between his actual and preferred data in several dimensions. His scores in the Student Support, Professional Interest and Resource Adequacy show John perceived the school as lacking in these areas. The scores also indicated he perceived his present working environment as meeting his expectations in Affiliation, Staff Freedom, Participatory Decision Making, Innovation, and Work Pressure.



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 5.1. SLEQ mean scores for grade 5 teacher.

In early October a meeting was held with John to discuss his SLEQ results. John was shown the line graph representing his SLEQ data. I pointed out there were minimal discrepancies between his preferred and actual scores in the Work Pressure

dimension. John and I discussed reasons for the pressures he perceived. John replied, "I don't know, can't think of anything in particular." To prompt John, I asked if he might feel more pressure from state, district or site administrators. John stated, "It comes from the state and district more so than the (site) administrators." He went on to say, "Test preparation, test prep is really the big thing."

John added he was now thinking of changing careers. When asked why he said, "(The) focus in schools is all wrong. I think the focus should be on academics and curriculum. Not solely on performance based assessments."

John was again asked if he felt he could make significant improvement in student outcomes in his present position. He said, "Significant (pause) with the mandates the way they are, with the focus being on testing and stuff like that, no." During the previous interview, one month before, he said the students' home environment was keeping him from making significant improvement in student outcomes.

I then asked John about the discrepancies between his Preferred and Actual form Student Support scores. At first, he appeared reluctant to respond. John then said, "I don't want to say anything that might be inappropriate." He paused and then explained, "The discrepancies between home environment and the school environment and their perception when they come to school, their perceptions of school." He went on to say the lack of home expectations were a major factor in his perception of less student support than he preferred. Although John now perceived testing pressures as the main obstacle, he still appeared to see the students' home

environment as a significant factor preventing him from improving student outcomes.

John was asked if he had any further comments on the SLEQ. He said, "I was a little intimidated with the length of the instrument. I guess it had to do that in order to ask the same question at different times worded differently and that's what makes it so valid." The next interview session was scheduled for the following week to discuss his classes' MCI data.

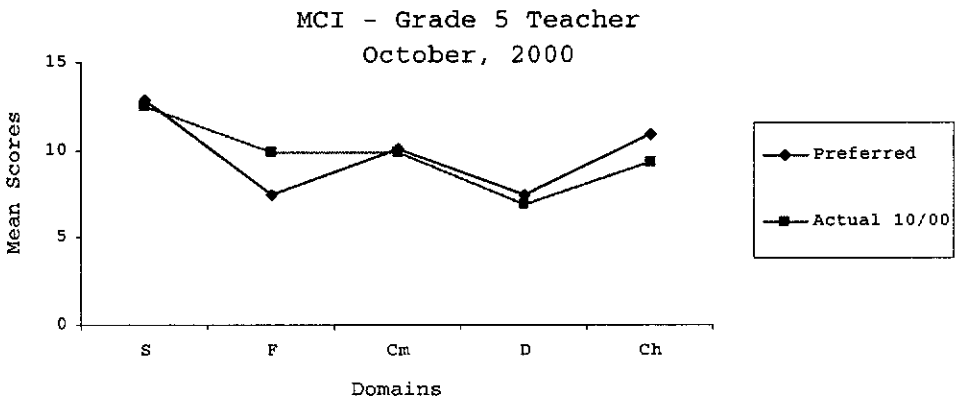
The MCI preferred form was administered to John's fifth grade mathematics class by me during the second week of September. I administered the MCI actual form two weeks later. I read both forms to John's class.

The classes' data was computed into mean scores for the MCI's five dimensions. The data was assembled in line graph form (see Figure 5.2) to be examined by the John and me. Slight discrepancies between the preferred and actual scores were evident in the dimensions Satisfaction, Competitiveness, Difficulty, and Cohesiveness. The greatest differences between the preferred and actual forms appeared in the Friction dimension.

During the next meeting, in mid-October, John was given copies of the MCI mean score data display in both a data table and a line graph. I pointed out that his students' data was similar for both preferred and actual perceptions in the Satisfaction dimension. After reviewing these data John said, "Well, that's probably where it is for all teachers. My perception is all students love their teachers." To

begin the interview on a positive note, I informed John that it is not always the case. He then responded, "I'm still pretty new at this."

John, while looking over his MCI data, then asked, "How far apart did you give these?" I reminded him the tests were administered two weeks apart. He then said, "That's good. I'm trying to think, were they trying to match, but they probably weren't. Their data is pretty valid."



S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

Figure 5.2. MCI mean scores for grade 5 teacher.

John was asked if he would like to view a specific student's data. He was unaware that I had the students write their names on the MCI forms. He said:

> How did you find out? What did you do? You had them write their names? Oh, I didn't know that. I'd love to know that.

In order to establish a positive interview atmosphere, I began with a student's whose MCI data was favorable to John's classroom environment. Of this student, John said, "(He's) one of the smartest kids in my class." While reviewing this student's MCI forms he said, "That's amazing. He's really a bright kid in my class. He does horribly in (another teacher's) class."

John was then shown data of several students' who I believed to have shown contradictory data responses. One child John identified as being in an ESOL class part of the day. He identified this student as having both written and oral English language difficulties. Of another child he said, "Struggling, but happy." One particular student he would only talk about if the recorder was turned off. Another child's data seemed to trouble him. The data showed a student who viewed the class as less difficult that she preferred. He said, "It scares me to think she sees it as a piece of cake when she's doing so poorly."

In concluding this interview I asked John if he had any general comments about his classroom environment data. He was asked if he felt he could improve student outcomes by better meeting students' perceptions of a positive learning environment. He said, "I think I can manipulate it."

In order to allow John an opportunity to reflect on his MCI data, the interview was terminated. John was given copies of both the graph and data table. John agreed to another meeting the following week to discuss specific interventions that might help him to manipulate the students' perceptions of his classroom environment.

In early November I gave John a package of index cards. John was asked to distribute an index card to each of his students and request they write their name on each card. I asked that John collect the cards and mark his students' mathematics abilities next to each name and then return the cards to me. John was asked to write an "R" next to those students he considered remedial, a "B" for basic, and an "A" for advanced. He returned the cards the next day. At this time John had 26 students in his morning mathematics class. He rated 11 students basic and 15 students remedial. I requested this to obtain a view of John's mathematics achievement expectations for his students.

Again John's school site obligations (curriculum, faculty, and testing meetings) delayed the next meeting until the last week of November. John was asked if he would implement several interventions over the next several months. He was informed the interventions would be developed by me. These interventions were developed to assist in improving the students' perceptions of their mathematics classroom environment. John agreed with the stipulation that the interventions would not be too time consuming. I assured John the interventions were designed to be non-invasive. He again expressed concern about the time demands the project may take considering his school site obligations.

The next intervention suggested, in early January, was to utilize the index cards John had collected from his students and marked with their mathematic ability levels. The cards were returned to John. He was asked to use the cards in sequential order when calling on students during questioning sessions.

The student's card that came up next was to answer the next question. The cards were also to be used when selecting students to perform special tasks in and out of the classroom. The students were to be informed the index card procedures and their purpose.

John was told this intervention was designed to promote student perceptions of equity in the classroom by reducing teacher dependence on favorite students. When it was explained to John that favorite students were those students called on most by the teacher he said, "That is a problem I have."

Scheduling difficulties again persisted over the next several weeks. John identified school wide activities, grade level meetings and test preparation workshops as reasons for not being able to schedule formal interviews. However, several opportunities presented themselves throughout these weeks for short "on the fly" interviews with John. John was very forthcoming in these short informal discussions. He seemed quite willing to express his opinions on the interventions. However, it proved impracticable for me to audio record these discussions, as planned, since they were meetings of opportunity. I recorded written notes of these meetings.

In early February, three weeks later, John was asked if he was able to implement the index card system. John's comments were favorable to this system. He commented the index cards were especially helpful during questioning periods with his afternoon class. This afternoon class was the class he did not want to be included in the project. John pointed out the system was helpful for controlling student outbursts and interruptions. He went on to say it was often necessary to shuffle the cards since the students proved adept at memorizing the card order.

At this meeting John was given a copy of a form entitled *Exit Survey* (Appendix F) to use with his class. The form was to be administered to his students at the conclusion of the mathematics class. This form was developed to assist John in obtaining a more complete understanding of his students' mathematics understanding.

In mid-February, John was asked about the exit surveys. He stated he used them once but was too overwhelmed to use them again. He found the responses interesting, but he had "other things on his mind."

I then asked John to implement another intervention; a form entitled *All about Me* (Appendix E), with his class. He reviewed the form and although he did not appear enthusiastic, he agreed. He was asked to review the responses and incorporate the information into future student teacher communications. John was informed that this intervention was designed to have the student feel a sense of importance to the teacher. He again mentioned the standardized testing pressures but said he would do, "What he could."

Standardized testing concluded in the middle of March for the fifth grade students. I scheduled a time to administer the MCI posttest to John's class in early April. This time John was given a copy of the SLEQ posttest and asked to return it as soon as possible. He returned the completed form two days later.

A final meeting was held with John in early May to discuss his final SLEQ and MCI results. The actual forms of both the SLEQ and the MCI were administered to the participating teachers as posttests during the third week of April. The scores of each

survey were computed to mean scores for each dimension. The mean scores where displayed in line graphs and data tables. Discrepancies between the pretest and the posttest mean scores on each of the dimensions were discussed.

John was shown his classes MCI data graph (see Figure 5.3). John's class had 30 children take the MCI over the school term. Reflecting the schools high student mobility rate, of these 30 children only 15 completed all three forms, the pretest preferred, the pretest actual, and the posttest actual. I decided to utilize the greatest amount of data available. All available student data was used in computing mean scores.

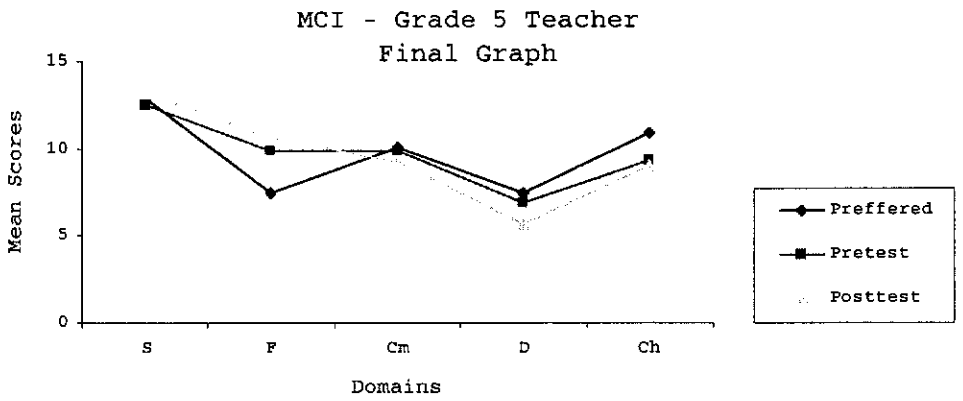
The first MCI dimension discussed with John was Difficulty. It was pointed out to John his students found his class less difficult on the posttest than on the pretest. He was asked to comment on these scores:

> I think what may be happening is their ability goes up so then they, you know, the material simply becomes easier. They perceive it to be less difficult than at the beginning of the year. They've just acquired all these skills throughout the year.

John was asked to comment on his MCI Friction scores. It was noted the scores indicated the students perceived more friction on the posttest than on the pretest. John said, "I can't see how friction has increased as the year has progressed. John was asked if he believed there was a connection between his score in Difficulty and Cohesiveness. John stated, "Yes."

John was asked if he used the Peace Education material with his students. John said, "Not as much as I would have liked, but yes I did." He continued to say:

> Yes, I did teach it, and if you were to ask one of my kids for example what their anger management plan was they could articulate something like that. I probably could of done a better job reinforcing it on a daily basis and bring out opportunities for them to use it. I certainly, probably, exposed them to more of the curriculum than a lot of other teachers.



S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

Figure 5.3. Final MCI mean scores for grade 5 teacher.

John was asked for the reason he was unable to do a better job of reinforcing the programs lessons. He said:

> Time constraints, which I know I'm going to hear from the staff. This is the most valid reason for not using the curriculum. But, I still managed to get it in.

John then went on to inform me he was the school's Peace Education chairman. He went on to say:

> I was, at the end of the year, elected as one of the leaders for leaders. What that basically boils down to is a trainer. I'll be doing workshops with the staff.

I next discussed John's SLEQ Student Support dimension scores with John. He was shown his SLEQ final graph (see Figure 5.4). It was pointed out to John that in the SLEQ Student Support dimension scores went down from October to April showing he perceived the school site had less student support than it did in September. John said, "I don't want to ruin your data. I have to be careful." John was assured I expected him to be forthcoming and not to worry about ruining the data. John then went on to say:

> I often thought about that afternoon class. I shouldn't have, I think you told me early on to be careful and base all of my information, my reasoning, on that homeroom class. That class you gave the surveys to. But, I would fill out the (SLEQ) surveys during the afternoon session."

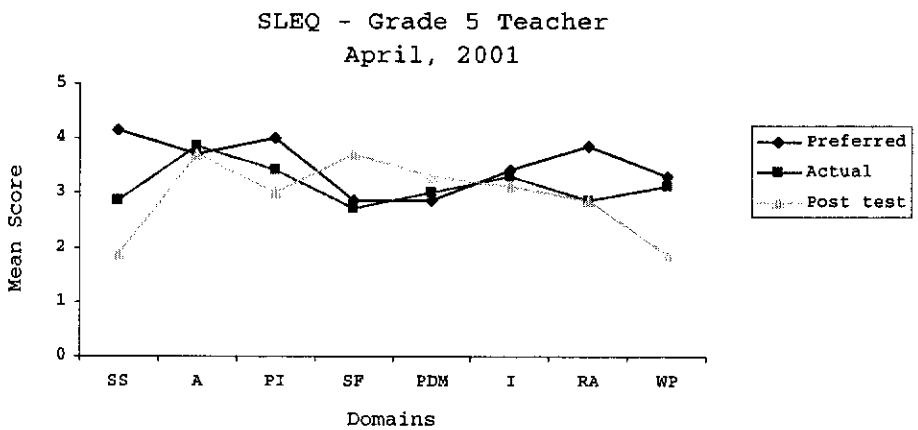
John was asked if his perceptions of his morning and afternoon classes were different. He commented:

> That's interesting. That makes perfect sense. That's one of the problems with departmentalization. I am more of a fan than an opponent. Then you do have a hard time taking ownership for that second class.

John was asked if he perceived more student support in his morning class than his afternoon class. He responded, "Yes, I definitely did." He was then asked if he felt as much student support as he preferred with this morning class. He said, "NO." John then was asked if he felt teachers complaining of lack of student support could be perceived by the public as blaming children for their lack of academic successes. He commented:

> In one sense we are, but you can't put it all on the students. We have to take some responsibility for a lot of it.

That's one of the things the Peace Education program talked about during one of our workshops. One of the sections was on resiliency. They try to point out to you all the things you are actually in control of. You can't control community, you can't control family, but you can control much more than you think, the environment in your classroom.



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 5.4. Final SLEQ mean scores for grade 5 teacher.

John was asked to think about his morning class and to tell what characteristics they displayed that made him feel less student support than he desired. He commented:

> One or two subjects within the class that would, like have a ripple effect on the rest of them. It was student behavior in the form of absenteeism and poor study skills. Apathy towards, you know, the school in general. You would ask them to take out a sheet of paper and it was like you were offending them.

John was asked if he could think of any reasons for this type of student behavior. He stated, "Cultural, I think a lot of it is cultural."

John was asked if the students' lack of successful academic experiences might be a reason for this behavior. He said:

> Yes, well they don't necessarily experience failure either. I don't know. It's not like the consequences for their behavior up to fifth grade has been so, you know, it's like it's no big deal. You don't really have to try hard your going to pass anyway. I don't necessarily think they have had a chance to experience success but they haven't really failed either. I don't know.

John was asked if the Peace Education program dealt with the apathy. He went on to say, "Yes, I think it could. I do believe that." When asked if the Peace Education program dealt with conflict resolution he said:

> Conflict resolution is really only one aspect. It's peace, peace enhancement programs because they also deal with effective communication, community building. Things that ultimately lead to conflict resolution but really it is only one component.

John was asked if given the opportunity, time, and materials would he be able to use the Peace Education program more effectively thus improving his perceptions of student support. He stated:

> Yes, if the whole school did it or at least, and your not to repeat this, it's a secret statistical number. You can use it in your study but you're not to repeat it to the staff. It only takes 50 percent of the school to do it.

> If one half of the school bought in the impact, I mean that's what their statistics show, that the impact on the school would be visual. It would be observable.

John was asked if he anticipated using the Peace Education program in the future. He said:

> Yes, much more that I did this year. For example my rules will be the foundation they give us, from the very beginning. I'm trying to be real good about all that, stick to those and identify problems. I hope to be able to.

John was asked if he felt there were similarities between his students' perception of high friction and low cohesiveness on the MCI actual and his perception of low

student support on the SLEQ actual questionnaires. John answered, "Maybe there are some students in the class that pick up on that stuff. I'm picking up on it."

I now moved on to John's SLEQ Work Pressure scores. In September he appeared to perceive the school's Work Pressure at close to his preferred level. His posttest scores indicated he would prefer considerably more work pressure. John explained much of this score had to do with his comparing this school with his previous school. His previous school was a corporately run charter school (School A). He explained:

> (School A) is a business model, parents were seen as customers. It was all about satisfaction and basically the curriculum was more challenging to the students and the teachers. Because you call it a partnership school, it wasn't a traditional charter school.
>
> We still had to use every instrument the (public schools), the state, and all those folks came up with in addition to the (School A) ones. So far as the test (state assessment) we gave the other day and we're having to document, well we had to give four of those monthly. So, you know, you had to be really good juggling your time, getting in all that work.
>
> Then in addition to that it just wasn't giving the assessments, and then there was an accountability report printed. Peoples' (teachers') ID numbers were attached to test scores. There was a lot of accountability so you felt the pressure to, even if it was just to save face, you felt the pressure to do the best that you could so your scores reflected that.

> Interestingly so far it hasn't worked. Now that I step outside and can look into it, I feel their biggest problems is that for four years now that they've been there, every year they just try to stay above water, because they have all these other things going on.
>
> Well, staff moral is low. Professional development is seen as more of a deterrent than a help, even though that's one of the big, big components. People are like bothered by it at this point. It's just so much and it cuts into their time. A lot of this is from first hand experience and a lot of this is from chatting with my peers.
>
> Then you come, to an environment like here, where like, you know, we have to give a pre (test) and a post (test), you know.

John was asked which school environment he believed was preferable to achieving improved student outcomes. He responded:

> Both have advantages, I felt more productive over there than I do here. This is more contusive to an outside life. I have lunch with my children and go home a three o'clock. I don't feel like I'm leaving anything that has to get done. I'm able to do it all during the day.
>
> I wanted to do the oratorical contest at the (county fair). I would never have done that when I was at (School A), to overwhelmed. I was a lead teacher there so I had additional responsibilities.

> The principal approached me with this math thing (contest). If he had done that last year, too bad give it to (another teacher). But, this year I could take it on, that and it also helps me with my studies. I feel I could go home and focus on stuff like that. So, there are advantages and disadvantages.

Another area I wanted to explore with John was his SLEQ scores in the Resource Adequacy dimension. John's scores seemed to show he perceived considerably less resource adequacy than he preferred. These Resource Adequacy dimension scores had changed little from the pretest. He was asked the school resource he felt was most lacking. He said:

> A library, our media center is pitiful, you can go to (another school), and it's not just the space. I can tell the difference, they just have really nice stuff. We might have it to but maybe it is just space. Because here it is all so tightly compacted. Over there and at my old school video equipment was easy to get a hold of. They had laser disks over there.

> I have a laser disk player but there are no laser disks to play in it. I know there are some (in the media center) but they are like, The *National Zoo* or *Smithsonian*, nothing spectacular.

John was asked what other equipment he would like to be available. He commented:

> I need a computer in my classroom. That's what I need and no I could never get that because of my location in a portable.

John's classroom was located in a temporary building referred to as a portable. He was asked if his classroom location had an impact on his perceptions of Resource Adequacy at this school site. John responded, "Oh, yes." John was then asked if he felt his resource adequacy perceptions were caused more by limited resources at the school site or because of his classroom being in a portable. He said:

> My location yes, now that you put it like that. I had all my lesson plans all on disks. I have three disks at home that have all my lesson plans on them for the past 3 years. This thing about writing in a book, I never did any of that. I just print them out and put them in a binder.
>
> I would type up worksheets, or like actual supplemental materials that were my own. I would pull information from curriculum out of the book, type it up and present it to the kids with a nice heading.
>
> I really feel limited in doing all that. I just washed my hands of all that. I feel it's too much of a challenge. I shouldn't have, I don't want to justify that. I should make do with what I have.

John was asked if he received any training in the use of the equipment that was available at the school site. He responded:

> I never sat in a training session for computers, but maybe I should have. It would motivate me more to go into the library and do stuff like that. But, I never received any training.

> The only equipment I've needed I've been able to get from (another teacher). There was once or twice I needed internet and it took entirely too long, so you know, I walked away from that. I made do with what I had. Occasionally I show a science film so I use a VCR. I tried those laser disks and it wasn't happening.
>
> You know what I think we could use a phone in every classroom.

Next John was asked if he had access to all the resources he wanted would his classroom environment become one that better meets his students' perceptions of a positive learning environment. He responded, "Maybe."

John was asked if he believed his students had perceptions of their classroom environment similar to his perceptions of the school's environment. He answered, "I don't know, I really don't know."

John was asked to comment on some specific programs available at the school site and their effect on his ability to meet his student needs. John was again asked for comments on the Peace Education Program. He said:

> It makes you more efficient, a more efficient teacher. Most of my energy goes to teaching, but too much of it goes to putting out fires here and there.

John was then asked to comment on a special commercial mathematics program used at the school. The program was purchased for the purpose of raising test scores. The program established a specific scope and sequence to be accomplished over a precise time schedule. He commented:

(Program name) helps me focus my instruction at the expense of a lot of other good stuff that I could be doing. I don't look at it as a positive thing.

I appreciate the guide, like a road map, it was helpful.

John was asked if he found his classes' MIC results accurate. He answered, "I think that the fact that you were able to replicate similar data shows it was a valid instrument."

John was now asked if he thought his students' perceptions of his classroom environment affected their outcomes. He stated, "Yes, definitely, perception is reality, what they think of their classroom is what they are going to do."

John was asked if he believed there were areas of the classroom environment he and his students perceived differently. He responded, "The data makes it seem like we are more or less in, you know, agreement."

John was then asked if he thought more about his classroom environment since this project started. He said, "Yes, you made me think a little more, conscious of that. Which is a good thing."

In concluding this interview and John's participation in the project he was asked if he believed the teacher has the ultimate control over their classroom environment. He answered:

> I agree 100 percent. We have to be resilient ourselves and stand above other factors. A lot of time I don't feel I'm doing as much as I can do. It comes into play with frustration and this and that. And that's not fair. The majority of the kids in the class deserve that I try harder.

The following chapter makes comparisons and contrasts between the two teachers data.

CHAPTER 6

COMBINED DATA DISCUSSION

This chapter reports on the collecting, categorizing, and analyzing of John's and Mary's quantitative data (SLEQ and MCI) and qualitative case study data. The chapter begins by reporting on the data that documents John's and Mary's acceptance of student perceptions of their mathematics classroom environment. The chapter next repots on the teachers' use of these perceptions to make changes to their classroom learning environments to better meet the students' perceptions of an ideal learning environment.

This chapter continues to report the factors of the school environment that the data indicated were affecting the teachers' willingness or ability to make changes to their learning environments. This chapter also reports on the data related to the teachers' academic expectations of their students. The data documenting the effect the school environment had on John's and Mary's continued participation in this research project is reported in detail. The chapter concludes with a report on the final assumptions that emerged from the data.

Documenting if teachers would be willing to accept students' perceptions of their classroom learning environments as valid and meaningful was seen as necessary in answering the project's research questions. Students' classroom environment perceptions were anticipated to be the foundation on which this research framework was constructed. Importantly, these student perceptions were to then become a

catalyst for encouraging John and Mary to make changes to their classroom environments.

The first section of this chapter reports on this initial step in the research process, having teachers validate their students' perceptions of their classroom learning environment.

6.1 VALIDATING STUDENT PERCEPTIONS OF CLASSROOM ENVIROMENTS

Mary's initial data, collected in late September, indicated she gave little validation to her students' perceptions of her classroom learning environment. As an example, after reviewing her MCI data (see Table 6.1), she responded:

> They didn't understand the words; they didn't answer the questions right; elementary students are too young.

Mary's overall response to the data was that it was interesting but it "didn't mean it will change anything." In spite of these observations she still agreed to participate in the study.

Table 6.1
Mary's MCI Results

	S	F	Cm	D	Ch
Preferred	13.30	8.89	10.85	8.89	13.04
Pretest	12.83	9.50	11.42	8.04	11.75
Posttest	12.82	10.55	12.14	6.82	10.55

S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

It was pointed out to Mary that her students' MCI perceptions of her classroom environment were similar to their perceptions of an ideal learning environment. She then commented, in a sarcastic manner, that it was nice having the students perceive her as the perfect teacher. During an interview two weeks later, Mary stated, in a more serious manner, that she was proud of and shared her MCI results with her family and friends. These data indicated that Mary was reflecting on and beginning to validate her students' classroom learning environment perceptions. It was anticipated that Mary might later, as the project evolved, lend credence to her students' learning environment perceptions.

John's interview data indicated that he did value his students' perceptions of their classroom learning environment. After viewing his MCI data (see Table 6.2), he expressed interest in the data profiles and patterns that emerged. He asked questions about the MCI data collection procedures. After reviewing the MCI data collection and scoring procedures, John concluded his MCI results were valid.

Table 6.2
John's MCI Results

	S	F	Cm	D	Ch
Preferred	12.90	7.50	10.10	7.45	10.90
Actual	12.52	9.88	9.88	6.92	9.36
Posttest	13.13	10.65	9.26	5.70	9.00

S: Satisfaction, F: Friction, Cm: Competitiveness, D: Difficulty, Ch: Cohesiveness

John's responses also showed that he was particularly interested that he could view individual student data as well as whole class data. His case study data also indicated he was surprised by some of the individual student responses. As an example, for one student he responded:

> I didn't know he (student) thought that.

John's further comments indicated he saw the MCI data as a reason for making changes to his classroom environment.

It became clear that John's and Mary's MCI results were a catalyst, initiating their enthusiasm to make changes to their learning environments. Once the teachers became aware of their students' classroom perceptions they were able to take the next logical step of seeing these perceptions as a reason for changing their learning environments. The research then focused on the teachers' magnitude of commitment to changing their classroom environments and their maintaining enthusiasm for the project throughout the entire research process.

By the conclusion of this project, in April, both teachers commented that due to their participation in this project they had become more aware of, and reflected more on, students' perceptions of their classroom learning environments. Although the degree of acceptance differed, John and Mary both indicated that they reacted to their students' perceptions. Whether they valued the students' perceptions as valid or not, it became clear that they reflected on their MCI results and thus, made changes to their classroom learning environments.

During the final interview sessions in April, while discussing the MCI posttest results, both teachers were again asked for their opinions on the validity of their students' classroom environment perceptions. Both teachers' final MCI data (see Tables 6.1 and 6.2) showed how their students had maintained favorable perceptions of their classroom learning environments. The discrepancies between the actual form means and preferred form means were described to John and Mary as being minimal. This was done to establish a positive atmosphere that would allow the teachers to view the MCI data as non-threatening.

John commented on the importance of changing elementary students' perceptions of their learning environments. He said:

> Yes definitely, perception is reality, what they (students) think about their classroom is what they are going to do.

Mary's comments on the validity of elementary student perceptions were less enthusiastic. When asked if elementary school students' perceptions could be considered reliable, Mary stated:

I don't think so in elementary school. I think in the higher grades levels, yes.

Although still reluctant to fully accept her students' MCI data, the data showed, by her, although less than desired, participation in the project, that she was reflecting upon their perceptions.

6.2 TEACHERS' PERCEPTIONS OF STUDENT ACHIEVEMENT

As the research project progressed and the data began to be collected, organized, and analyzed the importance of John's and Mary's student expectations began to emerge. By the conclusion of the research process, the teachers' academic and behavioral expectations for their students appeared to have a measurable effect on their school environment perceptions and their enthusiasm for making changes to their classroom learning environments. This section reports on the teachers' perceptions of their student's academic potential and its effect on their willingness to make changes to their mathematics classroom learning environments.

Mary's responses indicated she held low academic expectations for her students. When one of the project's interventions requested her to assign mathematic achievement levels for her students on index cards, she simply refused to comply and said there was no need to use index cards since her students were "all remedial" throughout the research period, she made such comments as:

My students were not smart enough, he's not getting it, and every word will confuse them.

When discussing low achieving, troublesome students, Mary insisted that the only solution was to have them administered psychological tests so that they could be removed from her class and placed in special programs.

John appeared to possess higher academic expectations for his students than did Mary. John was willing to fill out the index cards recording his perceptions of his students' mathematics abilities. He was able to categorize his students into two ability groups, remedial (15 students) and basic (11 students). Although, he did inform the researcher he had no students he considered advanced. (This was possibly a valid perception since the school site had an advanced academic class in which higher-achieving students were placed.)

Interestingly, Mary and John both noted that they perceived higher academic achievement in their morning (homeroom) classes than in their afternoon classes. In separate interviews, both teachers stated they would not permit their afternoon classes to participate in their research project. They also both insisted that the afternoon classes were not their responsibility. John's and Mary's reluctance to acknowledge professional responsibility for all their students was an unexpected phenomenon that emerged from the data. Although their afternoon classes' MCI data is not included in the project (the teachers would not allow it) this occurrence was seen as significant in constructing a complete picture of their professional attitudes.

Both teachers also mentioned they perceived less student support in their afternoon class. John stated he was concerned that his poor perceptions of his afternoon class might have influenced his SLEQ Student Support data since he completed the SLEQ

surveys during his afternoon class period. After discussing this he came to the conclusion that it was his professional responsibility to take ownership of his afternoon class. At no time during the research process did Mary indicate she made any connections between her afternoon class and her participation in this research project.

Unexpectedly, as the project evolved, both teachers' indicated that the school environment had a stronger than anticipated effect on their maintaining an active participation in the project. The following sections report on the teachers' SLEQ and case study data and their effect on their willingness to make changes to their classroom environments throughout the research process.

Table 6.3
Mary's and John's Total SLEQ Results

Mary	SS	A	PI	SF	PDM	I	RA	WP
Preferred	4.86	4.57	4.00	3.14	3.86	3.71	4.57	2.43
Pretest	2.29	2.71	3.00	2.43	2.86	1.86	1.57	4.00
Posttest	2.14	2.57	2.43	3.00	2.86	1.86	1.57	2.86
John	SS	A	PI	SF	PDM	I	RA	WP
Preferred	4.14	3.71	4.00	2.86	2.86	3.43	3.86	3.29
Pretest	2.86	3.86	3.43	2.71	3.00	3.29	2.86	3.14
Posttest	1.86	3.71	3.00	3.71	3.29	3.14	2.86	1.86

SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

6.3 THE EFFECT OF THE SCHOOL ENVIRONMENT

It became evident, as the project evolved, that once agreeing to make changes to their classroom environments, John's and Mary's developing school environment perceptions had an unexpectedly negative impact on their willingness to maintain enthusiasm for the project. The following sections report on specific school environment dimensions, as identified by the SLEQ and case study data that had the strongest effect on the teachers maintaining meaningful, active participation throughout the research process.

The SLEQ dimensions Student Support, Work Pressure and Resource Adequacy were selected as the primary classroom dimensions to be investigated in this research project. These dimensions were selected because the data indicated sizeable discrepancies between the teachers' SLEQ's preferred form and actual form data, on both the pretest and posttest. Additionally, the large portion of the case study data pertained to these dimensions thus, indicating these dimensions had a strong impact on the teachers' professional attitudes. Although this report section is limited to these three SLEQ dimensions, it is acknowledged there are additional dimensions of the school environment that had an effect on John's and Mary's perceptions. The additional school environment dimensions were reserved for study in future research projects.

6.4 TEACHERS' PERCEPTIONS OF STUDENT SUPPORT

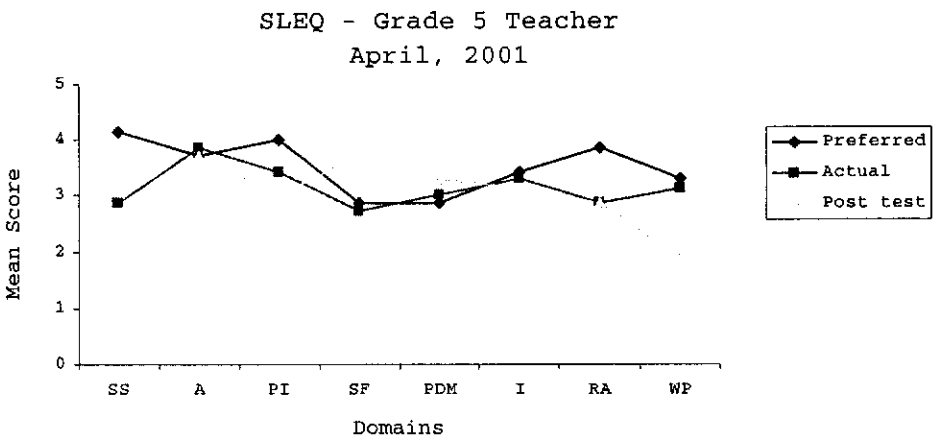
Both teachers' SLEQ Student Support dimension data indicated that they perceived low student support throughout the research process (see Table 6.3). Mary's

perceptions of student support remained more than two points lower (see Table 6.3) than what she preferred throughout the research period. John's student support score was 1.28 points lower on the pretest, in September, than the preferred. By the conclusion of the project, in April, his student support scores became 2.28 points lower (see Figure 6.1). The case study data indicated that the Student Support dimension had a formidable effect on both teachers' willingness to make changes to their classroom environments. This section compares the teachers' SLEQ Student Support data and their case study data in order to produce a more meaningful understanding of their perceptions of this school environment dimension and its effect upon the teachers' willingness to make changes to their classroom learning environments throughout the research process.

Mary's case study and SLEQ data (see Figure 6.2) showed her consistently low student support perceptions. Her case study data indicated that she perceived more student support at her previous school. She accounted for this by saying she had more parental involvement at that school site. Her case study data indicated that she made strong connections between student support and parental involvement. She felt unable to have her students fulfill their academic potential due to a less than needed parental support. She gave one example of not worrying about giving failing grades because she knew she would receive no parental feedback.

John's data showed how his student support perceptions became lower as the research process evolved. He also made connections between the students' home environments and his perceptions of student support. Like Mary, John identified his students' lack of supportive home environments as a major reason for his perceptions

of low student support. In the first interview, in September, John identified the lack of student support as the primary reason he was unable to make significant improvements to his students' learning outcomes. However, John was able to acknowledge additional factors of the school environment as affecting student academic achievement. For example, he felt that students or parents were not concerned with failing grades because they were aware that the school system just passed underachieving students on from one grade to the next.

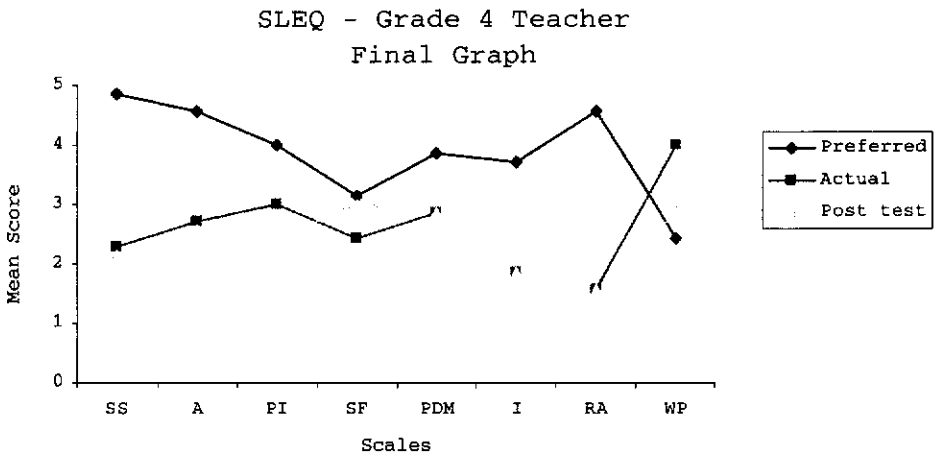


SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 6.1. John's SLEQ mean scores.

Importantly, unlike Mary, John indicated that he was willing to take some personal responsibility for his students' learning outcomes. He stated he should be doing more to meet his students' academic needs. In the final case study interview, while commenting on improving student learning outcomes, John stated that the majority of his students deserved that, "I try harder." In contrast, at no time did Mary's data indicate that she accepted any personal responsibility for her students' low academic achievements. Throughout the research period, Mary's data documented that she

consistently identified other factors, even the students themselves, for her students' low academic achievement.



SS: Student Support, A: Affiliation, PI: Professional Interest, SF: Staff Freedom, PDM: Participatory Decision Making, I: Innovation, RA: Resource Adequacy, WP: Work Pressure

Figure 6.2. Mary's SLEQ mean scores.

6.5 TEACHERS' PERCEPTIONS OF WORK PRESSURE

This section compares and contrasts the participants' quantitative and qualitative data for the SLEQ Work Pressure dimension. The data identified that work pressure was an additional dimension of the school environment that had a strong influence on the teachers' willingness to make changes to their classroom learning environments.

A noticeable change was observed in John's perception of his work pressure between the SLEQ pretest, in September, and posttest, in April. He perceived lower work pressure at the conclusion of the research period than at the beginning. His SLEQ posttest score in the Work Pressure dimension was 1.28 points less (see Table 6.3)

than on the pretest. Somewhat surprisingly, when compared to his SLEQ preferred scores, John would have actually preferred more work pressure. John explained this by stating he was judging this school site against his previous school site. John stated that he had perceived considerably more work pressure at his previous school site. However, he held mixed feelings on the importance of more or less work pressure. In regards to improved student achievement, John stated there were benefits for both increased work pressure and less work pressure.

As the project progressed Mary's actual work pressure perceptions made a noticeable change (see Table 6.1). Her SLEQ Work Pressure dimension scores were significantly lower on the posttest (2.86) than on the pretest (4.00). Unlike John, Mary's SLEQ preferred scores indicated that she preferred less work pressure. However, her case study data at times indicated she thought more administrative work pressure was needed. During one case study interview, Mary stated in a critical manner:

> There is no work pressure here.

As with John, Mary held mixed perceptions in regard to the effect that work pressure had on academic achievement.

John was asked from where his perceptions of work pressure originated. He stated that they came from the state and district more than from on-site administration. He again stated that standardized test preparation demands accounted for most of the pressure. The magnitude of these testing pressures became further evident when he said that if he was to change careers it would be because:

> The focus is all wrong... it should be on academics not performance based assessments.

This was a commonly held perception for both teachers.

Mary was asked where she felt the work pressures were coming from. She agreed with John saying how they, "funneled down" to the classroom from state, district, region and the school site administration. Additionally, Mary commented that many teacher responsibilities have been added. She went on to state that teachers were, "blamed for anything that went wrong." She later stated that "all the people are saying" teachers have to be held accountable. She later commented that teachers who work regular hours cannot get the job done. As the school year continued Mary's data showed how she became more and more frustrated. Mary's mounting frustrations evolved into a mind-set of hopelessness and it was at this point in the research process that maintaining Mary's participation became difficult.

As mentioned, both teachers indicated that standardized testing pressures affected their willingness to implement researcher-developed interventions. Mary indicated a reluctance, and at times refusal, to implement and discuss these interventions. She stated she either had a better way of doing it or didn't have the time due to school-site test preparation requirements. For example, after agreeing to implement the *Exit Survey* intervention, she said she did not have time to review them.

Although mentioning school-site test preparation obligations as well, John showed more willingness to implement and discuss the researcher-developed intervention strategies. He provided insightful case study comments about the projects

interventions. He was able to extend several research interventions to his afternoon class as well as his morning class. For example, the index card intervention, designed to promote questioning equity, he stated he found especially useful. He commented on how this intervention was useful in controlling student behaviors during verbal question and answer activities, especially with his afternoon class.

During the final interview, in April, Mary came to the conclusion that more work pressure at this school would have a negative result. John on the other hand still spoke of the advantages and disadvantages of more work pressure. The combined data still indicate both teachers were uncertain of the amount of work pressure they preferred.

As the data showed, each teacher was affected by her/his perception of work pressures at the school. While each teacher's reaction differed at times, their perceptions of work pressure affected their willingness to fully participate in the research project. In the following section another SLEQ dimension of the school environment, Resource Adequacy, and its effect on the teachers' professional attitudes is reported.

6.6 TEACHERS' PERCEPTIONS OF RESOURCE ADEQUACY

In this section the teachers' resource adequacy case study and SLEQ data are evaluated. The section goes on to document how the availability of, what John and Mary perceived as adequate, resources influenced their willingness to make changes to their classroom learning environments. Both teachers' low SLEQ Resource

Adequacy scores indicated that they held similar perceptions pertaining to this dimension. The teachers' SLEQ resource adequacy perceptions remained noticeably less than their preferred throughout the research period thus, establishing the importance of this dimension in influencing the teachers' over-all school level perceptions. However, it was not until John's and Mary's case study data were collected and analyzed that explanations for their particular perceptions emerged.

John discussed his perceptions of the inadequate resources at the school site often during the research project. He, as did Mary, noted the lack of a library and media center, due to construction, was a major obstacle to acquiring the instructional resources that he perceived as necessary for meeting his students' academic needs.

In separate interviews, John and Mary commented on the lack of computers and other electronic equipment. Both teachers noted that because their classrooms were in re-locatable buildings, security precautions prevented them from having computer equipment in their classrooms. They both commented that the classrooms in the permanent, more secure, building did have computers.

To further emphasize the security difficulties in re-locatable classrooms, Mary mentioned that her classroom had been broken into and vandalized four times. She continued that some of her personal teaching resources were stolen or destroyed. Mary stated that she removed her personal instructional resources from the classroom since she felt nothing was being done about the vandalism.

John mentioned how he had developed many instructional activities that required the use of computers. He stated that at the other school he did his lesson plans on the computer. However, he stated at this school he was, "unable to do any of that."

Both teachers agreed that much of their resource perceptions had to do with their classrooms being in temporary, re-locatable buildings. They acknowledged that they would have more access to school resources if their classes were in the permanent building.

During separate interviews, both teachers stated that they perceived more adequate instructional resources at their previous schools and thus felt that there they had been better able to address their students' academic needs. John went on to say he just gave up and coped with what he had at this school. Mary indicated that she did the same. Furthermore, both teachers were resigned to the fact that their perceived resource adequacy difficulties would not be improved.

Consistencies in the teachers' data indicated that their low perceptions of resource adequacy at this school site were probably valid. Mary's score was 3.00 points lower in the Resource Adequacy dimension (see Table 6.3) when compared to her SLEQ preferred form results; John's score was 1.00 points lower. Interestingly, both teachers' scores remained numerically identical in the SLEQ Resource Adequacy dimension on both the pretest and posttest.

During the final interview, John was asked if he had all the educational resources he wanted, would he be able to make significant improvements to his students, learning

outcomes. His response was an unsure, "maybe". The data showed that other dimensions of the school environment had a greater impact on his perceptions on being able to improve his students learning outcomes. Both teachers' resource adequacy data showed it negatively influenced their perceptions of the overall school environment.

The following section reports on two special resources that were available to John and Mary even though their classrooms where in temporary buildings. If implemented into the classroom as designed these two resources would encourage the teachers to make changes to their classroom environment thus, these programs were seen as beneficial to this research program goals. The following section reports on John's and Mary's data pertaining to these two programs.

6.7 TEACHERS' PERCEPTIONS OF AVAILABLE SCHOOL RESOURCES

To improve student behavior, promote a sense of community, and increase academic achievement, the school had purchased two ancillary curricula. One program, The Peace Education Program was available for all grade levels and designed to develop a general sense student and parental support. In general, the program was focused on improving both student behaviors and overall academic achievement.

Another program, a commercially developed mathematics program, was available to teachers in grades two through five to implement in their classrooms. This program focused on mathematics content and was designed to improve standardized test scores. The mathematics program was specifically developed for low achieving

schools, like the research site. On-site training sessions were held for both programs and the teachers were required to implement these programs into their classrooms.

Mary indicated that she did not implement the Peace Education Program. She stated that she did not use the program because she had her own conflict resolution program which she employed in her classroom. She also went on to say she was unable to fit it into her schedule due to the administratively-mandated standardized test preparation obligations. Additionally, she mentioned that since she knew that the lower grade levels were not using the program, she could accomplish nothing using the program for just one year. However, in a later interview she commented, "Students need to feel better about themselves to do better academically." The development of increased student self-esteem was one of the key objectives of the Peace Education Program and was stressed in the training sessions which Mary was required to attend.

When asked to comment on the mathematics program, Mary stated that she used her own mathematics curriculum. She said she administered and scored the mathematics program's periodic prescriptive and diagnostic evaluations only because she was required to turn in the students' scores to the administration. She went on to comment that no one came to her and showed her what to do with the test data. Her case study data showed that Mary was aware that the school's standardized mathematics test scores had increased since the program was implemented. However, her main concern appeared to be that the principal would attribute the score increases to the special mathematics program.

Table 6.4
Teacher Perceptions of Selected School Environment Dimensions

		Mary	John
Student Characteristics	Std. Perceptions of their classroom learning environment	Reluctant to accept	Accepted
	Student academic expectations	All remedial	Basic and remedial
School Environment Dimensions	Student Support	Primary obstacle to improving student learning outcomes	Major but not only obstacle to improving learning outcomes
	Work Pressure	Uncertain at first, then later preferred less	Uncertain
	Resource Adequacy	Negative	Negative
		Made do with what was available	Made do with what was available
Special Programs	Peace Education	Saw little use	Found useful
	Mathematics	Minimal use only did what was required	Found some use saw only minimal benefit
Conclusion		Frustration, helplessness	Do more, become more resilient

Unlike Mary, John displayed a willingness to use available school site resources. John's data indicated that he believed the Peace Education program helped him to improve his student support perceptions. He commented about not being able to give the Peace Education Program enough class time due to other curriculum obligations, such as standardized test preparations. John stated that he intended to employ the program more fully during the next school term. He indicated that he was especially interested using this program to reduce student apathy.

In regard to the mathematics program, John did have some reservations toward the mathematics program. John said that he only used the program's pacing guide, and not the entire program. When asked why he did not employ the entire program, he replied that the program only teaches to the standardized test.

6.8 DATA COMPARISION CONCLUSIONS

After initially accepting their students' learning environments perceptions as valid reasons for making changes to their classrooms, the data indicated that John's and Mary's school environment perceptions had a substantial effect on their maintaining active participation throughout the research process. After triangulating the teachers' case study data with their corresponding SLEQ quantitative data (see Table 6.4), the importance of the school level environment in promoting meaningful change to the classroom learning environments emerged.

This project, after favorably answering the original research questions, discovered that unanticipated school environment factors affected John and Mary's willingness to make significant changes to their classroom environments. It was not until the data were collected, organized, and analyzed, that the importance of the teachers' school environment perceptions became evident. The data showed that John's and Mary's negative school environment perceptions had a measurable effect on their willingness to improve learning outcomes by changing their elementary mathematics classrooms to meet their students' perceptions of the ideal learning environment. Each school environment dimension documented in this report had a significant effect on John and Mary professional attitudes. Although the magnitude of these

influences varied at times, these influences did measurably affect both John's and Mary's professional attitudes. The influences did little to promote the changing of classroom environments and in most instances they proved to be detrimental to having John and Mary meet their students' perceptions of preferred learning environments. It was evident that a school level environment that is perceived by teachers as nurturing and encouraging change is necessary if teachers are to be expected to make changes to their mathematics classroom environments and improve student learning outcomes.

The next chapter reports, after a short overview of the project, on the significance of this research, lists limitations of the study, and makes future research suggestions.

CHAPTER 7

CONCLUSION

7.1 THESIS OVERVIEW

The purpose of the research described in this thesis was to investigate whether teachers would be willing to be active participants in an action research plan designed to assess, describe and change their own classroom environments based on their students' perceptions of the ideal learning environment. This procedure was assumed to be a valid strategy that would generate improved student learning outcomes.

The project demonstrated that elementary mathematics teachers could be willing participants in an action research project designed to make changes to their classroom learning environments. The teachers viewed their students' perceptions of their classrooms as valid and thus, establishing a need for making informed changes to their learning environments. The data showed that teachers valued the student's classroom perceptions and allowed them to become benchmarks for constructing a research framework designed to improve learning outcomes.

Unexpectedly, as the data were collected, the significant importance of teachers' school-level environment perceptions and the influence they had on their enthusiasm to maintain ongoing participation in the research process became clear. Significantly, this project was able to document specific school environment dimensions that

negatively affected the teachers' commitment to making meaningful changes to their classroom learning environments. Although unanticipated in the original research questions, the importance of the teachers' school environment perceptions emerged as a significant finding of this research.

The project revealed that the school environment had an unexpectedly strong influence on a teachers' willingness to implement changes to their classroom environments. Additionally, the data demonstrated that while each teacher's reaction to school environment dimensions may have differed in effect; each teacher was affected in some way by the school environment. These reactions to the school environment proved to have a measurable effect not only on the teachers' participation in this project but their overall professional attitudes as well. The data clearly demonstrated that for an action research plan to produce meaningful changes to the classroom learning environment it must include accommodations for the effect the school environment has on the classroom teachers' participation in the project.

7.2 SIGNIFICANCE OF THE STUDY

The significance of this study can be established by answering the original research questions. Notably, this project established that:

1. An action research plan can be developed to direct elementary mathematics teachers in using student perceptions to assess their classroom learning environments.

2. A research framework can be constructed for elementary mathematics teachers to use student perceptions to accurately describe their classroom learning environments.

3. Elementary teachers will validate student perceptions of their learning environments and utilize them in making changes to their mathematics classrooms

The study went on to document the significance of the school-level environment and its impact on teachers' attitudes towards participating in an action research program designed to improve their classroom learning environments. This research went on to show the effect that teachers' perceptions of the school dimensions had on their enthusiasm and continued active participation in this project.

This project further showed that the school environment needs to be addressed when designing a research framework intended to make changes to the classroom environment. The data verified that for continued, active teacher involvement, which is necessary for the successful improvement of the classroom environment, the impact the school environment has upon teachers' professional attitudes must be considered.

7.3 STUDY LIMITATIONS

While the sampling of two teachers produced qualitative data that allowed for a more meaningful understanding of these two specific elementary mathematics classrooms,

it was limited in acquiring large amounts of quantitative data. While it is believed teaching throughout the world has many common characteristics, it is important to bear in mind these teachers were located in relative isolation when viewed with a global perspective. Although the research conclusions emerged through the systematic analyzing of reliable data, a larger more diverse population of teachers would be beneficial to further support the research conclusions.

7.4 FUTURE RESEARCH

The proven importance of positive student classroom perceptions and its link to improved student performance make further research into school and classroom environment relationships an important direction for future research. The complexity of these relationships and their effect on student learning outcomes mandate additional research into the classroom teachers' importance in these environments. The professional behaviors of teachers and how it is affected by the total school environment needs to be researched in detail if bringing about meaningful changes in student academic and behavioral achievement is to occur.

Continued research is needed to investigate the entire school environment and its effect on all participants in the classroom, not only the teachers but the students as well. The identifying of those characteristics of a positive school environment that allow for classroom environment change to occur would greatly benefit the implementation of classroom reform programs. Once identified, these characteristics could be replicated in additional school environments to produce improved student learning outcomes beyond the scope of the elementary mathematics classroom.

The conclusions of this project should not be viewed as an end but rather viewed as establishing reasons for further investigating the teacher's role in school and classroom environment research. The particular school environment characteristics that have proven to encourage teachers to see the importance in changing their instructional styles and methods to increase student achievement warrant continued investigation. Additional research should uncover the school environment components that not only allow for but promote and reward teachers for taking the professional risks necessary to go beyond traditional teaching routines and become actively involved in the continuously evolving science of teaching.

To retain qualified people in the classroom and attract the brightest and best individuals to select education as their careers, it would be of importance to identify the behavioral skills of exemplary teachers. It is important to identify the behavioral characteristics that allow some teachers to minimize the often counter productive effects that peripheral influences may have on the classroom. Research should be undertaken to reveal those teacher characteristics that allow some teachers to flourish and blossom professionally while, within the same school environment, other competent teachers become frustrated, sullen and unproductive.

7.5 FINAL COMMENT

The focus of this research study was to document if teachers were willing to assess, describe and change their classroom environments to improve student outcomes. Data for assessing and describing the classroom environment was collected through surveys documenting student perceptions, both actual and preferred, of their

mathematics classroom environments. Observations and conclusions were presented in two case studies. The case studies detailed each teacher's attitudes towards classroom environment importance and willingness to change the environment based on student perceptions.

This research did show that teachers would engage in an action research project designed to assess, describe, and change their classroom environments by using student perceptions of their learning environments. However, having teachers perceive the need for change and being willing to make those changes proved to be strongly affected by the influences of the school environment.

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APPENDIX A

Photocopy as many as required

School-Level Environment Questionnaire (SLEQ)

PREFERRED Form

There are 56 items in this questionnaire. They are statements to be considered in the context of the school in which you work and your *preferred* or *ideal* working environment.

Think about how well the statements describe the school environment in which you would *prefer* to work.

Indicate your answer on the score sheet by circling:

SD If you *strongly disagree* with the statement;
D If you *disagree* with the statement;
N If you neither agree nor disagree with the statement or are not sure;
A If you *agree* with the statement;
SA If you *strongly agree* with the statement;

If you change your mind about a response, cross out the old answer and circle the new choice.

1. There would be many disruptive, difficult students in the school.
2. I would seldom receive encouragement from colleagues.
3. Teachers would frequently discuss teaching methods and strategies with each other.
4. I would often be supervised to ensure that I followed directions correctly.
5. Decisions about the running of the school usually would be made by the principal or a small group of teachers.
6. It would be very difficult to change anything in the school.
7. The school or department library would include an adequate selection of books and periodicals.
8. There would be constant pressure to keep working.
9. Most students would be helpful and co-operative to teachers.
10. I would feel accepted by other teachers.
11. Teachers would avoid talking with each other about teaching and learning.
12. I would not be expected to conform to a particular teaching style.
13. I would have to refer even small matters to a senior member of staff for a final answer.
14. Teachers would be encouraged to be innovative in the school.
15. The supply of equipment and resources would not be adequate.
16. Teachers would have to work long hours to complete all their work.
17. Most students would be pleasant and friendly to teachers.
18. I would be ignored by other teachers.
19. Professional matters seldom would be discussed during staff meetings.
20. It would be considered very important that I closely follow syllabuses and lesson plans.
21. Action could usually be taken without gaining the approval of the subject department head or a senior member of staff.
22. There would be a great deal of resistance to proposals for curriculum change.
23. Video equipment, tapes and films would be readily available and accessible.
24. Teachers would not have to work very hard in this school.
25. There would be many noisy, badly-behaved students.
26. I would feel that I could rely on my colleagues for assistance if I needed it.
27. Many teachers would attend inservice and other professional development courses.
28. There would be few rules and regulations that I would be expected to follow.
29. Teachers frequently would be asked to participate in decisions concerning administrative policies and procedures.
30. Most teachers would like the idea of change.
31. Adequate duplicating facilities and services would be available to teachers.
32. There would be no time for teachers to relax.
33. Students would get along well with teachers.
34. My colleagues seldom would take notice of my professional views and opinions.
35. Teachers would show little interest in what was happening in other schools.
36. I would be allowed to do almost as I please in the classroom.
37. I would be encouraged to make decisions without reference to a senior member of staff.
38. New courses or curriculum materials seldom would be implemented in the school.
39. Tape-recorders and cassettes seldom would be available when needed.
40. You could take it easy and still get the work done.
41. Most students would be well-mannered and respectful to the school staff.
42. I would feel that I had many friends among my colleagues at the school.
43. Teachers would be keen to learn from their colleagues.
44. My classes would be expected to use prescribed textbooks and prescribed resource materials.
45. I would have to ask my subject department head or senior member of staff before I did most things.
46. There would be much experimentation with different teaching approaches.
47. Facilities would not be adequate for catering for a variety of classroom activities and learning groups of different sizes.
48. Seldom would there be deadlines to be met.
49. Very strict discipline would be needed to control many of the students.
50. I would often feel lonely and left out of things in the staffroom.
51. Teachers would show considerable interest in the professional activities of their colleagues.
52. I would be expected to maintain very strict control in the classroom.
53. I would have very little say in the running of the school.
54. New and different ideas would always be tried out in the school.
55. Projectors for filmstrips, transparencies and films would usually be available when needed.
56. It would be hard to keep up with your workload.

APPENDIX B

Photocopy as many as required

School-Level Environment Questionnaire (SLEQ)

ACTUAL Form

There are 56 items in this questionnaire. They are statements to be considered in the context of the school in which you work and your actual working environment.

Think about how well the statements describe your school environment.

Indicate your answer on the score sheet by circling:

SD if you *strongly disagree* with the statement;
D if you *disagree* with the statement;
N if you neither agree nor disagree with the statement or are not sure;
A if you *agree* with the statement;
SA if you *strongly agree* with the statement;

If you change your mind about a response, cross out the old answer and circle the new choice.

1. There are many disruptive, difficult students in the school.
2. I seldom receive encouragement from colleagues.
3. Teachers frequently discuss teaching methods and strategies with each other.
4. I am often supervised to ensure that I follow directions correctly.
5. Decisions about the running of the school are usually made by the principal or a small group of teachers.
6. It is very difficult to change anything in this school.
7. The school or department library includes an adequate selection of books and periodicals.
8. There is constant pressure to keep working.
9. Most students are helpful and co-operative to teachers.
10. I feel accepted by other teachers.
11. Teachers avoid talking with each other about teaching and learning.
12. I am not expected to conform to a particular teaching style.
13. I have to refer even small matters to a senior member of staff for a final answer.
14. Teachers are encouraged to be innovative in this school.
15. The supply of equipment and resources is inadequate.
16. Teachers have to work long hours to complete all their work.
17. Most students are pleasant and friendly to teachers.
18. I am ignored by other teachers.
19. Professional matters are seldom discussed during staff meetings.
20. It is considered very important that I closely follow syllabuses and lesson plans.
21. Action can usually be taken without gaining the approval of the subject department head or a senior member of staff.
22. There is a great deal of resistance to proposals for curriculum change.
23. Video equipment, tapes and films are readily available and accessible.
24. Teachers don't have to work very hard in this school.
25. There are many noisy, badly-behaved students.
26. I feel that I could rely on my colleagues for assistance if I needed it.
27. Many teachers attend inservice and other professional development courses.
28. There are few rules and regulations that I am expected to follow.
29. Teachers frequently are asked to participate in decisions concerning administrative policies and procedures.
30. Most teachers like the idea of change.
31. Adequate duplicating facilities and services are available to teachers.
32. There is no time for teachers to relax.
33. Students get along well with teachers.
34. My colleagues seldom take notice of my professional views and opinions.
35. Teachers show little interest in what is happening in other schools.
36. I am allowed to do almost as I please in the classroom.
37. I am encouraged to make decisions without reference to a senior member of staff.
38. New courses or curriculum materials are seldom implemented in the school.
39. Tape recorders and cassettes are seldom available when needed.
40. You can take it easy and still get the work done.
41. Most students are well-mannered and respectful to the school staff.
42. I feel that I have many friends among my colleagues at this school.
43. Teachers are keen to learn from their colleagues.
44. My classes are expected to use prescribed textbooks and prescribed resource materials.
45. I must ask my subject department head or senior member of staff before I do most things.
46. There is much experimentation with different teaching approaches.
47. Facilities are inadequate for catering for a variety of classroom activities and learning groups of different sizes.
48. Seldom are there deadlines to be met.
49. Very strict discipline is needed to control many of the students.
50. I often feel lonely and left out of things in the staffroom.
51. Teachers show considerable interest in the professional activities of their colleagues.
52. I am expected to maintain very strict control in the classroom.
53. I have very little say in the running of the school.
54. New and different ideas are always being tried in this school.
55. Projectors and filmstrips, transparencies and films are usually available when needed.
56. It is hard to keep up with your workload.

APPENDIX C

item 5

SLEQ

set research information for teachers
number two 1990

School-Level Environment Questionnaire

Developed by
Dr Darrell Fisher
Tasmanian State Institute of Technology
and
Professor Barry Fraser
Curtin University of Technology, Western Australia.

Using and scoring the SLEQ

The scoring procedure is the same for both Forms, *Actual* and *Preferred*.

The items are arranged in cyclic order: the first item measures *Student Support*, the second measures *Affiliation*, the third *Professional Interest*... up to the eighth, *Work Pressure*. The ninth measures *Student Support* (again); the tenth *Affiliation* (again); and so on.

Some items are scored in this direction: 5 for Strongly Agree, 4 for Agree, 3 for Neither Agree nor Disagree, 1 for Strongly Disagree. These items are marked plus (+) in the chart below.

Some items are scored in the opposite direction: 1 for Strongly Agree, 2 for Agree, 3 for Neither Agree nor Disagree, 4 for Disagree, 5 for Strongly Disagree. These items are marked minus (−) in the chart below.

Omitted or invalid responses are given a score of 3.

1. Give a score to each question, using the chart to work out which score to give.
2. Add across the rows.
3. Add total staff scores across the rows.
4. Average the staff scores across the rows.
5. Make a graph (profile) of the results.

Scoring
School Level Environment Questionnaire

Scale	Items and Scoring Direction
Student Support	1−, 9+, 17+, 25−, 33+, 41+, 49−.
Affiliation	2−, 10+, 18−, 26+, 34−, 42+, 50−.
Professional Interest	3+, 11−, 19−, 27+, 35−, 43+, 51+.
Staff Freedom	4−, 12+, 20−, 28+, 36+, 44−, 52−.
Participatory Decision Making	5−, 13−, 21+, 29+, 37+, 45−, 53−.
Innovation	6−, 14+, 22−, 30+, 38−, 46+, 54+.
Resource Adequacy	7+, 15−, 23+, 31+, 39−, 47−, 55+.
Work Pressure	8+, 16+, 24−, 32+, 40−, 48−, 56+.

\+ Items are scored 5 for Strongly Agree, 4 for Agree, 3 for Not Sure, 2 for Disagree and 1 for Strongly Disagree.
− Items are scored in the reverse manner.

Example

Scoring

						Sign	score
1.	SD	(D)	N	A	SA	−	4
2.	SD	D	N	(A)	SA	−	2
3.	SD	D	N	A	(SA)	+	5
4.	(SD)	D	N	A	SA	−	5

and so on.

Agreggating scores for one teacher

Student Support

Question no.	1	9	17	25	33	41	49	Total
Score	4	3	1	2	5	3	2	20

Affiliation

Question no.	2	10	18	26	34	42	50	Total
Score	2	3	2	2	1	2	3	15

and so on.

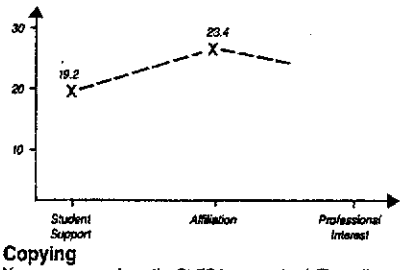
Aggregating scores for whole staff (of 5)

Student Support 20 + 21 + 30 + 15 + 10 = 96
Affiliation 15 + 28 + 24 + 30 + 20 = 117
and so on.

Averaging staff score

Student Support 96 divided by 5 = 19.2
Affiliation 117 divided by 5 = 23.4
and so on.

Graphing (Staff Profile)



Copying

You may copy and use the SLEQ in your school. The authors will be most interested in any results and comments that arise from its use. Correspondence to Dr Darrell Fisher, Department of Adult Learning and Post-Graduate Study, Tasmanian State Institute of Technology, P.O. Box 1214, Launceston, Tasmania, Australia, 7250.

APPENDIX D

Photocopy as many as required

SLEQ
Score Sheet
Actual Form

1	SD	D	N	A	SA
2	SD	D	N	A	SA
3	SD	D	N	A	SA
4	SD	D	N	A	SA
5	SD	D	N	A	SA
6	SD	D	N	A	SA
7	SD	D	N	A	SA
8	SD	D	N	A	SA
9	SD	D	N	A	SA
10	SD	D	N	A	SA
11	SD	D	N	A	SA
12	SD	D	N	A	SA
13	SD	D	N	A	SA
14	SD	D	N	A	SA
15	SD	D	N	A	SA
16	SD	D	N	A	SA
17	SD	D	N	A	SA
18	SD	D	N	A	SA
19	SD	D	N	A	SA
20	SD	D	N	A	SA
21	SD	D	N	A	SA
22	SD	D	N	A	SA
23	SD	D	N	A	SA
24	SD	D	N	A	SA
25	SD	D	N	A	SA
26	SD	D	N	A	SA
27	SD	D	N	A	SA
28	SD	D	N	A	SA
29	SD	D	N	A	SA
30	SD	D	N	A	SA
31	SD	D	N	A	SA
32	SD	D	N	A	SA
33	SD	D	N	A	SA
34	SD	D	N	A	SA
35	SD	D	N	A	SA
36	SD	D	N	A	SA
37	SD	D	N	A	SA
38	SD	D	N	A	SA
39	SD	D	N	A	SA
40	SD	D	N	A	SA
41	SD	D	N	A	SA
42	SD	D	N	A	SA
43	SD	D	N	A	SA
44	SD	D	N	A	SA
45	SD	D	N	A	SA
46	SD	D	N	A	SA
47	SD	D	N	A	SA
48	SD	D	N	A	SA
49	SD	D	N	A	SA
50	SD	D	N	A	SA
51	SD	D	N	A	SA
52	SD	D	N	A	SA
53	SD	D	N	A	SA
54	SD	D	N	A	SA
55	SD	D	N	A	SA
56	SD	D	N	A	SA

SLEQ
Score Sheet
Preferred Form

1	SD	D	N	A	SA
2	SD	D	N	A	SA
3	SD	D	N	A	SA
4	SD	D	N	A	SA
5	SD	D	N	A	SA
6	SD	D	N	A	SA
7	SD	D	N	A	SA
8	SD	D	N	A	SA
9	SD	D	N	A	SA
10	SD	D	N	A	SA
11	SD	D	N	A	SA
12	SD	D	N	A	SA
13	SD	D	N	A	SA
14	SD	D	N	A	SA
15	SD	D	N	A	SA
16	SD	D	N	A	SA
17	SD	D	N	A	SA
18	SD	D	N	A	SA
19	SD	D	N	A	SA
20	SD	D	N	A	SA
21	SD	D	N	A	SA
22	SD	D	N	A	SA
23	SD	D	N	A	SA
24	SD	D	N	A	SA
25	SD	D	N	A	SA
26	SD	D	N	A	SA
27	SD	D	N	A	SA
28	SD	D	N	A	SA
29	SD	D	N	A	SA
30	SD	D	N	A	SA
31	SD	D	N	A	SA
32	SD	D	N	A	SA
33	SD	D	N	A	SA
34	SD	D	N	A	SA
35	SD	D	N	A	SA
36	SD	D	N	A	SA
37	SD	D	N	A	SA
38	SD	D	N	A	SA
39	SD	D	N	A	SA
40	SD	D	N	A	SA
41	SD	D	N	A	SA
42	SD	D	N	A	SA
43	SD	D	N	A	SA
44	SD	D	N	A	SA
45	SD	D	N	A	SA
46	SD	D	N	A	SA
47	SD	D	N	A	SA
48	SD	D	N	A	SA
49	SD	D	N	A	SA
50	SD	D	N	A	SA
51	SD	D	N	A	SA
52	SD	D	N	A	SA
53	SD	D	N	A	SA
54	SD	D	N	A	SA
55	SD	D	N	A	SA
56	SD	D	N	A	SA

APPENDIX E

SUPPLEMENT B

MY CLASS INVENTORY

STUDENT PREFERRED SHORT FORM

DIRECTIONS

This is not a test. The questions are to find out what you would like or prefer your class to be like.

Each sentence is meant to describe what your preferred class is like. Draw a circle around

YES if you AGREE with the sentence
NO if you DON'T AGREE with the sentence.

EXAMPLE

27. Most pupils in our class would be good friends.

If you agree that you'd prefer that most pupils in the class would be good friends, circle the Yes like this:

(Yes) No

If you don't agree that you would prefer that most pupils in the class would be good friends, circle the No like this:

Yes (No)

Please answer all questions. If you change your mind about an answer, just cross it out and circle the new answer. Don't forget to write your name and other details below.

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your preferred classroom	Circle Your Answer	For Teacher's Use
1. The pupils would enjoy their schoolwork in my class.	Yes No	___
2. Pupils would be always fighting with each other.	Yes No	___
3. Pupils often would race to see who can finish first.	Yes No	___
4. In my class the work would be hard to do.	Yes No	___
5. In my class everybody would be my friend.	Yes No	___
6. Some pupils wouldn't be happy in my class.	Yes No	R ___
7. Some pupils in my class would be mean.	Yes No	___
8. Most pupils would want their work to be better than their friend's work.	Yes No	___
9. Most pupils would be able to do their schoolwork without help.	Yes No	R ___
10. Some pupils in my class would not be my friends.	Yes No	R ___
11. Pupils would seem to like my class.	Yes No	___
12. Many pupils in my class would like to fight.	Yes No	___
13. Some pupils would feel bad when they didn't do as well as the others.	Yes No	___
14. Only the smart pupils would be able to do their work.	Yes No	___
15. All pupils in my class would be close friends.	Yes No	___
16. Some pupils wouldn't like my class.	Yes No	R ___
17. Certain pupils always would want to have their own way.	Yes No	___
18. Some pupils always would try to do their work better than the others.	Yes No	___
19. Schoolwork would be hard to do.	Yes No	___
20. All pupils in my class would like one another.	Yes No	___
21. My class would be fun.	Yes No	___
22. Pupils in my class would fight a lot.	Yes No	___
23. A few pupils in my class would want to be first all of the time.	Yes No	___
24. Most pupils in my class would know how to do their work.	Yes No	R ___
25. Pupils in my class would like each other as friends.	Yes No	___

For Teacher's Use Only: S F Cm ____ D ____ Ch ____

This page is a supplement to a publication entitled *Assessing and Improving Classroom Environment* authored by Barry J. Fraser and published by the Key Centre for School Science and Mathematics at Curtin University.

APPENDIX F

SUPPLEMENT A

MY CLASS INVENTORY

STUDENT ACTUAL SHORT FORM

DIRECTIONS

This is not a test. The questions are to find out what your class is actually like.

Each sentence is meant to describe what your actual classroom is like. Draw a circle around

YES if you AGREE with the sentence
NO if you DON'T AGREE with the sentence.

EXAMPLE

27 Most pupils in our class are good friends.

If you agree that most pupils in the class actually are good friends, circle the Yes like this:

(Yes) No

If you don't agree that most pupils in the class actually are good friends, circle the No like this:

Yes (No)

Please answer all questions. If you change your mind about an answer, just cross it out and circle the new answer. Don't forget to write your name and other details below.

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher's Use
1. The pupils enjoy their schoolwork in my class.	Yes No	____
2. Pupils are always fighting with each other.	Yes No	____
3. Pupils often race to see who can finish first.	Yes No	____
4. In my class the work is hard to do.	Yes No	____
5. In my class everybody is my friend.	Yes No	____
6. Some pupils are not happy in my class.	Yes No	R ____
7. Some pupils in my class are mean.	Yes No	____
8. Most pupils want their work to be better than their friend's work.	Yes No	____
9. Most pupils can do their schoolwork without help.	Yes No	R ____
10. Some pupils in my class are not my friends.	Yes No	R ____
11. Pupils seem to like my class.	Yes No	____
12. Many pupils in my class like to fight.	Yes No	____
13. Some pupils feel bad when they don't do as well as the others.	Yes No	____
14. Only the smart pupils can do their work.	Yes No	____
15. All pupils in my class are close friends.	Yes No	____
16. Some pupils don't like my class.	Yes No	R ____
17. Certain pupils always want to have their own way.	Yes No	____
18. Some pupils always try to do their work better than the others.	Yes No	____
19. Schoolwork is hard to do.	Yes No	____
20. All pupils in my class like one another.	Yes No	____
21. My class is fun.	Yes No	____
22. Pupils in my class fight a lot.	Yes No	____
23. A few pupils in my class want to be first all of the time.	Yes No	____
24. Most pupils in my class know how to do their work.	Yes No	R ____
25. Pupils in my class like each other as friends.	Yes No	____

For Teacher's Use Only: S ____ F ____ Cm ____ D ____ Ch ____

This page is a supplement to a publication entitled *Assessing and Improving Classroom Environment* authored by Barry J. Fraser and published by the Key Centre for School Science and Mathematics at Curtin University.

APPENDIX G

All About ME !!

My Full Name is: _____

My Birthday is: _____

My Favorite:

Food: _____

Sport: _____

Friend: _____

School Subject: _____

Holiday: _____

Animal: _____

Toy: _____

Television Show: _____

Pizza Topping: _____

Color: _____

Book: _____

Ice Cream: _____

If I Had A Wish It Would Be: _____

_____

APPENDIX H

Name:_____ Date:_____

EXIT SURVEY

Today I had fun doing:

For lunch today I had:

Today I had trouble doing my work in:

Something that confused me today was:

APPENDIX I

Grade 4 Teacher
Interview #1 – Background

How long have you been a classroom teacher?

Seven years.

How many years have you been teaching at this site?

Two years.

What other schools have you taught at?

(Mentions four elementary schools by name.)

What grade levels have you taught?

Kindergarten, grade one, three, and four. I have also taught ESOL, alternative, and gifted.

How many years have you taught fourth grade?

Two.

What is the highest academic degree you have attained>

BA in Library Sciences

Do you enjoy teaching?

Yes

Would you consider a career change if the opportunity presented itself?

Yes, I don't rule anything.

What do you feel is the number one obstacle to your meeting student needs?

Lack of parental support.

Do you feel you have the power to make significant improvement in student outcomes in your present situation?

No.

Grade 4 Teacher
Interview #2 – SLEQ Results

Your data indicates you would prefer greater resource adequacy. Can you list what resources you would like?

> They library, you know, restrictive regulations. My kids can only check out one book a week. We have no training with the equipment, video disk and Windows on Science.

Your data also indicates you would like to participate more in the decision making at this school. Do you feel this is true?

> Yes.

Your work pressure data indicate you perceive more work pressure than you would prefer. Where do you fell the work pressure is coming from?

> Comes down, starts at the state and comes down from there but I think that a lot of things have been added with what we need to teach and nothing has been taken away. Again, if there's a problem you're blamed for it.

Do you think you could accomplish more if your actual perceptions of work pressure were more in line with your preferred level of work pressure?

> Oh, sure.

May I administer a similar survey to your class next week?

> Are you going to read it to them?

Yes.

> OK.

This survey uses the term pupils for students. Do you think the term pupils will confuse them?

> Well, every word will confuse them. What are some of the questions you are going to ask? I mean is it enough?

Yes, it has 25 questions.

Grade 4 Teacher
Interview #2 – MCI Results

As you can see your class perceives your classroom a s less difficult than they preferred.

> You're kidding. My theory is if they put forth effort, even if they get it wrong, I see effort that's the main thing.

You students would prefer less friction in your classroom.

> So would I.

Your students MCI data indicates they perceive your class is high in competition.

> Their really isn't any competition in my classroom.

Could you make a list of students you expect to be doing better in your classroom?

> But, also remember my kids, I feel who are not meeting their potential; a lot of it has to do with quality of home life. The expectations are there not with me.

What over all comment could you make about your SLEQ and MCI data?

> I find it interesting, but it doesn't mean anything is going to change or it is going t o do anything. I am glade to hear my class is basically what they want.

Over the next few months I would like to implement some strategies that are designed have your students perceive your classroom as more closely similar to the learning environment they prefer. The interventions will be designed to be non-intrusive and complement what you are already doing in the classroom.

> Well god knows what else you can do for me.

APPENDIX J

Grade 5 Teacher – Final Interview

Your final MCI data indicated your class perceived more friction and less cohesiveness than they preferred. Do you see a connection between these two domains?

Yes

The final data also indicated your students perceived less difficulty than on the pretest.

I think what may be happening is their ability goes up so they think they, you know, the materials simply becomes easier, they perceive it to be less difficult than they preferred it to be.

Do you have any comments about your students' friction data on the post test?

I can't see how the friction has increased as the year progressed.

Did you use the Peace Education materials?

Not as much as I would have liked. But, yes, I did.

Where you the school chairman for this program?

I was, at the end of the year; I was elected as one of the leaders for leaders. What that basically boils down to is a trainer. So I believe I'll be doing a workshop with you guys.

Yea, but to teach it, yea I did teach it. And if you were to ask one of my kids for example what their anger management plan was they could articulate something like that. I probably could have done a better job of reinforcing it on a daily basis and bring out opportunities for them to use it but I certainly, probably exposed them to more of the curriculum than a lot of other teachers.

What are some of the reasons you felt you didn't do a better job?

Time constraints, which I know I'm going to hear a lot from the staff, which is the most valid reason for not using the curriculum. But I still managed to get it in.

Your SLEQ post test data indicates you perceived lower student support on the post test than on the pretest. Do you believe there is a correlation between the student's MCI friction data and your student support data?

I don't want to ruin the data. I have to be very careful.

Be honest, ruin the data.

> I often thought about that afternoon class and I shouldn't have. I think you told me earlier on to be careful and base all my information, my reasoning, on that homeroom (morning) class, the class you gave the surveys to. But I would fill out the survey (SLEQ) during that afternoon class.

I wrote that teachers did not feel their afternoon class was their own. Is this a valid statement?

> That's interesting. That makes perfect sense. That's one of the problems with departmentalization. I'm more of a fan than an opponent. Then you do have a hard time taking ownership for that second class.

Do you think this is a common feeling among elementary teachers?

> It probably is. Because in secondary school I'm sure that is not the case. All those classes.

So, did you perceive more student support from your morning class?

> Yes, definitely did.

Did you perceive as much student support with your morning class as you wanted?

> No.

What characteristics of the morning class exhibited this lack of student support?

> There were two subjects within the class that would, that like had a ripple effect on the rest of them (students).

Was the main problem student behaviors?

> Yea, it was student behaviors and student behaviors in the form of absenteeism and poor study skills. Apathy towards you know, the school in general.

Could you use the word depressed?

> Yes, there were some that would; you would ask them to take out a sheet of paper and it was like you were offending them.

What do you believe was the cause of that?

> Cultural, I think a lot of it cultural.

Do you think it could have to do with the students not experiencing academic successes?

> Yes, well they don't necessarily experience failure either. I don't know. It's not like the consequences for their behavior up to fifth grade has been so, you know, it's like it's no big deal. You don't really have to try hard your going to pass anyway. It's not necessarily they haven't had a chance to experience success but they haven't really failed either. I don't know.

Could the conflict program (Peace Education) address these programs?

> Yes, I think it could. I do believe that.

Does the Peace Education Program deal with conflict resolution?

> Conflict resolution is only really one aspect. It's a peace enhancement program because they also deal with effective communication, community building things that ultimately lead to conflict resolution but it's really one of the components.

If given the opportunity, time, and materials, to implement the Peace Education program would it improve you student support perceptions?

> Yes, if the whole school did it, or at least, and your not to repeat this, it's the secret statistical number, you can put it into your study but your not to repeat it to the staff. It only takes 50 percent of the school to do it. If half the school bought in, the impact, I mean that's what their statistics show, that the impact on the school would be visual. It would be observable.

Do you feel your perception of a lack of student support and the student perceptions of high friction are similar observations.

> Maybe, maybe there are some students in the class that pick up on that stuff, I'm picking it up.

Are you going to use the Peace Program next year?

> Yes, much more than I did last year, for example my rules will be the foundation given us, from the very beginning. I'm trying to be real good about that. Stick to those and identify problems. I hope to be able to.

Your SLEQ data shows you perceive less work pressure than you prefer. You told me it had to do with previous teaching experiences.

> Yes, the Edison Project business model, parents were customers, it was all about satisfaction and basically the curriculum was more challenging to the students and to the teachers. Because you call it a partnership school it wasn't what as traditional charter school would be. We still had to use every assessment instrument the county, state and all those folks came up with in addition to the Edison ones. So those FCAT assessments we just gave the other day and how we are having to document; we had to give four of those monthly. So, you know, you had to be really good juggling your

time, getting in all that work. In addition to that it just wasn't giving the assessments; then there were accountably reports printed, peoples ID numbers were attached to the test scores. There was a lot of accountability so you felt pressured to, even if it was just to save face, you felt the pressure to do the best that you could so that your scores reflected that, and interestingly so far it hasn't worked. Now that I step outside and can look into it I feel that their biggest problem is for the four years now that they'd been there, every year they just try to stay above water. Because they have all of these other things going on, well staff morale is low, professional development is like, you know seen as more of a deterrent than a help even though that's one of the big components. People are like bothered by it at this point. It's just so much and it cuts into their time, and a lot of this is from chatting with my peers.

Then you come to an environment like here, where like you know we have to give a pre and post you know.

Which school is preferable?

Both have advantages, I felt more productive over there than I do here. This is more conducive to an outside life. I have lunch with my children and go home at 3 o'clock and I don't feel like I'm leaving anything that I have to get done. I'm able to get it all done during the day.

Are you teaching?

Yes, when you know classroom behavior is conducive to that. And then in addition to that I feel like I could do that oratorical contest at the Youth Fair. I never would have done that when I was at (other school); to overwhelmed.

I was a lead teacher there so I had additional responsibilities. The principal approached me with this math thing, if he had done that last year, to bad give it to another teacher. But this year I felt I could take on and it also helps me with my studies. I feel like I could go home and focus on stuff like that. So there are advantages and disadvantages.

Your resource adequacy data remained the same, low. What resources is the school lacking?

A library, our media center is pitiful. You go to (another school) it's not just space, I can tell the difference. They have really nice stuff. And we might have it too, but maybe it is just space. Because here it is all tightly compacted. Over there and at my old school video equipment was so easy to get a hold of. We had laser disks over there. I have a laser disk player, but there are no laser disks to play in it.

There are some laser disks in the media center.

I know but they are all like The National Zoo or Smithsonian, nothing spectacular.

Other than laser disks if you wanted a piece of equipment do you feel you could get it?

I need a computer in my classroom. That's what I need and no I could never get that because of my location in a portable.

What effect does the importance of test scores have on your teaching?

> It helps me focus my instruction at the expense of a lot of good stuff that I could be doing. Overall I don't look at it as a positive thing.

Did you think about your classroom environment since this project started?

> Yes, you made me a little more conscious of that; which is a good thing.

Do you feel your students' MCI perceptions of your class are accurate?

> I think the fact that you were able to replicate the similar data shows it was a valid instrument.

Do you think students' classroom environment perceptions have an effect on their learning outcomes?

> Yes, definitely, perception is reality, what they think of their classroom is what they are going to do.

Are there areas of your classroom environment you and your students perceive differently?

> The data makes it seem like we are more or less in you know agreement.

When a student comes to your class does he/she want to be successful?

> Oh, sure.

Your SLEQ student support data appears to show you blame the students for their lack of academic achievement?

> In one sense I am, but you can't put it all on the students, I have to take responsibility for a lot of it. That's one of the things the Peace Program talked about during one of our workshops. One of the sections was on resiliency. They try to point out to you all the things you are actually in control of. You can't control community, you can't control family, but you can control much more than you think, the environment in your classroom.

Do you think the teacher has the ultimate control over the classroom environment?

> I agree 100 percent. We have to be resilient ourselves and stand above all these other factors. A lot of times I don't feel I'm doing much as I can do. It comes into play with frustration and this and that. And I think that's not fair. The majority of the kids in the class deserve that I try harder.