Images, Metaphors and Climates:

An investigation of relationships between teachers' images of their schools, their perceptions of work climates, and students' perceptions of classroom environments

by

Brian
Neville B. Grady B Ec (Hons), Dip Ed (Sydney),
Grad Dip Mgt (Central Queensland), M Ed St (Tasmania)

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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma by any educational institution and, to the best of my knowledge and belief, it contains no material previously written or published, except where due reference is made in the text of the thesis.

Neville B. Grady

Abstract

There are two major purposes of the study. The first is to explore associations between students' perceptions of their classroom psychosocial environments and their teachers' perceptions of their school climates. The second is to investigate relationships between teachers' images of their schools, on the one hand, and perceptions they and their students have of their relevant school climate or classroom environment on the other. These purposes are translated into three specific research questions. In order to throw some light on why students experience considerable stress as they negotiate the transition between Primary and Secondary schooling, the questions are investigated across the Grades 5 - 8 range.

The research questions are answered through employment of three paper-and-pencil questionnaires:

1) *School Level Environment Questionnaire*, which was developed originally by Fraser and Rentoul and later refined by Fraser and Fisher;

2) *My Class Environment* which was developed specifically for this study, but which was based upon *Learning Environment Inventory* (developed originally by Anderson and Walberg) and *My Class Inventory* (a simplified version of *Learning Environment Inventory*); and

3) *Images of Schools through Metaphor* which was developed as part of the study and which is quite innovatory in concept and form.

The sample for the study proper was representative of the Tasmanian educational enterprise in many respects and consisted of more than 4,000 students and 162 teachers and classrooms in 48 schools. Other subjects, who were involved because some Principals took the opportunity to embark on a whole school audit in conjunction with the study, provided data which were also employed to validate/revalidate the questionnaires.

The thesis concludes that the questionnaires were satisfactory tools to answer the three research questions, although suggestions are made for their improvement. In broad terms, it is demonstrated that teachers' perceptions of Student Supportiveness, in particular, are related positively to students' perceptions of their classroom environment (and hence to the quality of student learning). Similarly, teachers' images of their

school which are concerned largely with cooperation and ceremony are shown to be associated positively with a range of classroom environment and school climate perceptions. Other images, such as those concerned largely with suppression, are shown to be related negatively with many of these environment/climate aspects. Associations between the teachers' and students' perceptions of the various climate/environment scales and the images teachers have of their schools are shown to differ somewhat at the Primary and Secondary levels, and these differences point to a number of implications for school leaders, especially concerning tighter coupling of core aspects of Secondary schools.

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Chapter 1

Introduction

This thesis is concerned primarily with investigating school climates, classroom environments and the images, as expressed through metaphor, which teachers have of their schools. These are important matters.

The study is based in part on the belief that the quality of people's functioning is influenced not only by the nature of their personalities, but also, to an extent, by the nature of the environment or climate of the particular setting in which they find themselves. This claim is summarised neatly by Lewin's (1935) equation: $B = f(P,E)$.

One may judge that it is desirable to enhance classroom environments and school climates even if there is no more worthy outcome than simply making classrooms and schools better places for students and teachers to spend their time in. However, we know that students' learning is enhanced when they are in classrooms with a positive environment, and, similarly, that the climate at the school level is an important factor when the quality of the work that teachers do is the talking point. Thus, to enhance the students' classroom environment and the teachers' work climate is also, it can be argued, an admirable thing to do from a "productivity" or "educational" perspective. To improve teachers' work climate and at the same time see better classroom teaching practice would, it seems, make the goal of improving this variable in educational activity even more worthy.

Following this argument, it is one of the aims of this study to discover whether or not there are any significant relationships between teachers' perceptions of the school-level climate and their students' perceptions of classroom environments. If there are significant relationships here, school Principals and members of their leadership teams may feel that it is worthwhile to endeavour to enhance their teachers' school climate in the expectation that students' perceptions of their classroom environment will also improve. A consequence of such action may be that the quality of the students' learning may be bettered as well.

The nature of the school work climate, however, is not the only organisational force relating to teachers' work behaviours, effectiveness, efficiency or what have you. Teachers operate, in part at least, on the basis of a set of assumptions, some of which may be held at a conscious level, but some of which may be held at a deeper, sub-conscious level. Consequently, it may be futile, if not dangerous or negligent, to set

about trying to improve a school's work climate if that climate is underpinned in some way by counter-productive or otherwise inappropriate assumptions which few people in the school recognise and even fewer discuss. An example here, perhaps, is that "children are unwilling empty vessels into which one must attempt to force-feed a certain body of prescribed knowledge".

How do school leaders such as Principals go about uncovering such sub-consciously held assumptions that are part of the mental baggage of their teachers? After all, they can't expect to get much of a response if they simply ask their teachers to describe their sub-conscious and unknown assumptions about schooling. Similarly, Principals, although they may follow Murdoch (1992, p. 307) in regarding 'the "unconscious mind" [to be] a deep abode of ambiguous images', are not usually equipped to analyse their teachers' dreams or to engage adequately in other such psychoanalytic probes. The position taken in this research project is that a solution to this problem may be found in investigating the metaphors which depict the images teachers have concerning their school.

There is good reason to believe that the language, including the metaphors, of "efficiency" and "effectiveness", which has tended to dominate the way many have spoken of education over the past few years, 'cannot be thought to encompass the essence of schooling' (Starratt, 1990, p. 4). The question remains though: "But what language(s), can?"

Taylor's (1984, p. 8) point was well made:

> In educational, as in other forms of discourse, it is a matter of no little importance that the implications of the metaphors we employ or accept are made explicit, and the ways in which they structure our thought, and even our action, are better understood.

Starratt (1990), for example, saw social life as being drama conducted through dramaturgical conventions, and, consequently, argued that schooling is a 'formal attempt to coach youngsters in the playing of the social drama and to critique their performance while there is still an atmosphere of rehearsal' (1990, p. 5). Following this view, actors, directors, stage managers, drama coaches, critics, audiences, scripts, props and so on would all have a part to play on the stage, in the wings and elsewhere in school as rehearsal studio.

Starratt's view is likely to be an appealing one to many who are concerned with schooling, but, of course, the drama metaphor is not the only one which ought be

probed or which is likely to be fruitful in helping us to understand better the essence of schooling. Bredeson (1988), for example, shadowed five Principals for a time and identified three metaphors which, it was argued, described their purposes: the metaphors of maintenance, of survival and of vision. Steinhoff and Owens (1989) also reported how some teachers viewed schools in terms of metaphors such as "little House of Horrors".

Not long ago this researcher facilitated a workshop involving teachers and parents who were beginning to organise their thinking about their school and about the sort of school they would like it to be. Several days after the workshop a letter was received from an anonymous parent. Its contents are reproduced below.

> My child's school is a prison. The inmates (pupils) are physically abusive to one another and many of the officers in charge (teachers) do not know what to do about it and some officers choose to do absolutely nothing. Many innocent inmates are made to walk beside the officers in charge in order to protect themselves while the real offenders are let run wild.
>
> Some of the officers are kind and understanding towards the inmates and give them a fair deal in obeying the rules and regulations of prison life but other officers are corrupt and treat the prisoners unfairly. They have their own set of rules and ways of dealing with prisoners and visitors (parents) who do not conform.
>
> The Warden (Principal) tries to keep in touch with everything that is going on in the prison by making visits to cell divisions (classes). The Warden also tries to impart an open, honest, trusting relationship between officers and inmates and visitors but in practice this is not always the case. The Warden is only too willing to listen to problems, however, many visitors who come to discuss certain problems are given little or no satisfaction. When something happens to an inmate that should be against the rules, regulations and philosophy of the prison by an officer and it is brought to the attention of the Warden, visitors are left wondering whether the Warden is as corrupt as the officer responsible.
>
> The officers and the Warden have all the rights and the inmates and visitors have **no** rights.

The first point to note here is that, clearly, this parent had an image of this school. If a parent perceives aspects of a school in this manner it is considered that teachers are likely to do likewise. It seems reasonable to assume as a starting point that if teachers at this, or any other school, have an image of it as a Prison, but that image is not recognised, it is likely that any school improvement efforts will, at best, make the Prison a better Prison, and that may not be a desirable thing to do.

Boulding (1956), for example, presented the view that people have images of aspects of the world, which vary in certainty or uncertainty, probability or improbability, clarity or vagueness, but which depict what they believe to be true. In the study at hand here it has been useful to consider image to be a quasi-pictorial representation (perhaps not a picture as such, as claimed, for example, by Langer, 1957); something which is sometimes shadowy, messy, indeterminate, vague, fragmentary, porous, kinaesthetic, visual, literary, verbal, or non-verbal (Murdoch, 1992); something which might arise from long-term memory or the senses (including linguistic/descriptive information); and which may or may not be analogous to perception; but which is, at least, what Kosslyn (1980) called a convenient "engineering" feature of the mind.

The second feature of the description of school as Prison is that it is presented largely through metaphor. Metaphor is, indeed, very important in our lives. Take Kittay's (1987, p. 89) point as outlined below as an example:

> Few metaphors seem as dead and worn-out to us as the 'leg of a table'. Yet, reputedly, within the purview of Victorian sexual prudery this phrase was revivfied, replete with salacious meaning: Victorians regarded it as necessary to cover tables with long table-cloths to avoid the indecency of viewing exposed 'limbs'.

Similarly, note the claim made by Lakoff and Johnson (1980, p. 4):

> Our concepts structure what we perceive, how we get around in the world, and how we relate to other people. . . . If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do everyday is very much a matter of metaphor.

When thinking about these matters as they concern education, it is interesting to read Plato's description of himself as a teacher (as was his custom, he spoke through the mouth of another, this time Socrates):

> I am the son of a midwife . . . and I myself practise midwifery.
>
> . . . Such are the midwives, whose task is a very important one, but not so important as mine; for women do not bring into the world at one time real children and at another time counterfeits which are with difficulty distinguished from them; if they did, then the discernment of the true and false birth would be the crowning achievement of the art of midwifery. Well, my art of midwifery is in most respects like theirs but differs, in that I attend men and not women, and I look after their souls when they are in labour and not their bodies; and the triumph of my art is in thoroughly examining whether the thought which the mind of the young men brings forth is a false idol or a noble and true birth. And like the midwives, I am barren, and the reproach which is often made against me, that I ask questions of

> others and have not the wit to answer them myself is very just. . . And therefore I am not myself at all wise, nor have I anything to show which is the invention or birth of my soul, but those who converse with me profit. . . The many fine discoveries to which they cling are of their own making. But to me and the god they owe their delivery. . . (Extracts from Plato's *Theaetetus* , cited by Kittay, 1987, pp. 299-300).

Of more recent origin was Jackson's (1968) contribution which drew parallels between schools on the one hand and prisons and mental hospitals on the other. He also demonstrated how teachers are traffic cop, judge, supply sergeant and time-keeper; how the teacher is the student's first "Boss"; and how children, generally, being aware that in schools as in factories and prisons good behaviour pays off and so seek to become "good workers" and "model students". Jackson pointed out too that 'From kindergarten onward, the student begins to learn what life is really like in The Company' (1968, p. 37).

Although the use of metaphor in education is commonplace (see for example, Beare, 1987), of course this field of activity does not hold any sort of monopoly on it. Religions are grounded in a set of root metaphors, as in "God is love" for example (Tracy, 1979), and metaphor exerts considerable power in art (MacRae, 1975). Further, much social policy emanates from metaphor and it is clear that we often search for solutions to problems, such as the AIDS "invasion", through a metaphorical framework.

This study is based on the belief that there is likely to be considerable benefit from identifying the nature and intensity of metaphors that teachers see as dominating the life of their school and, where appropriate, seeking to introduce and nurture metaphors that offer promise of serving as more effective mental scaffolds for those teachers. In comparison with the school as Prison example provided above, school as Drama rehearsal room (after Starratt, 1990), school as Knowledge workplace (Schlechty and Joslin, 1986), or school as Firm, as Family, as Fair, and as Forum (Baker, 1991) might be advocated.

Aspects of this study, therefore, are based on a belief that there seems to be a case for recognising that people do possess some sort of image of, for instance, the nature of schools; that this image reflects something of the assumptions that they hold concerning schools; and that the image can be investigated in a meaningful way by using metaphor as a tool. A second aim of this study, consequently, is concerned with identifying metaphors which describe, in part at least, teachers' images of their school, and thus

provide some insight into their assumptions, subjective knowledge and concepts concerning schooling.

In addition, the study seeks to probe links that may exist between the metaphors and images that guide teachers' thoughts and actions and their perceptions of school climate and their students' perceptions of classroom environment. It is believed that these linkages have not been investigated in a formal manner prior to this study, and it is anticipated, as a result of the study, that school Principals and other school leaders and decision-makers will be better placed to understand schooling better, to promote through a variety of ways particular metaphors and images to focus school improvement efforts, and to build climates which are most likely to facilitate valued learning outcomes.

With these aims in mind, the specific research questions are:

1. What significant relationships exist between classroom environment as perceived by students and school climate as perceived by their teachers?

2. What significant relationships exist between students' perceptions of the classroom environment and their teachers' images of the school?

3. What significant relationships exist between teachers' perceptions of the school climate and their images of the school?

The conceptual framework which underpins the study is quite complex, not least because of the ubiquitous nature of metaphor. It is regarded that one's image of a school, for example, may be metaphorical in nature. Further, it is regarded that one's image may be described through metaphor. Then, in addition, it is considered that one's image may be born and nourished as a result of others' use of metaphor. Figure 1 attempts to set down the essence of the framework. The lines which connect the various aspects, and indeed the vertical placement of these aspects, should not be interpreted as necessarily implying any causal relationship in one direction or another. The three bold lines relate to the three research questions.

Relationships between the quality of students' learning outcomes and their perceptions of the classroom psychosocial environment, in particular, have been probed in other studies (see section 2.1.6 following) and are not investigated in the present study. The

linkage is shown in Figure 1 simply to demonstrate that the study has relevance to student outcomes.

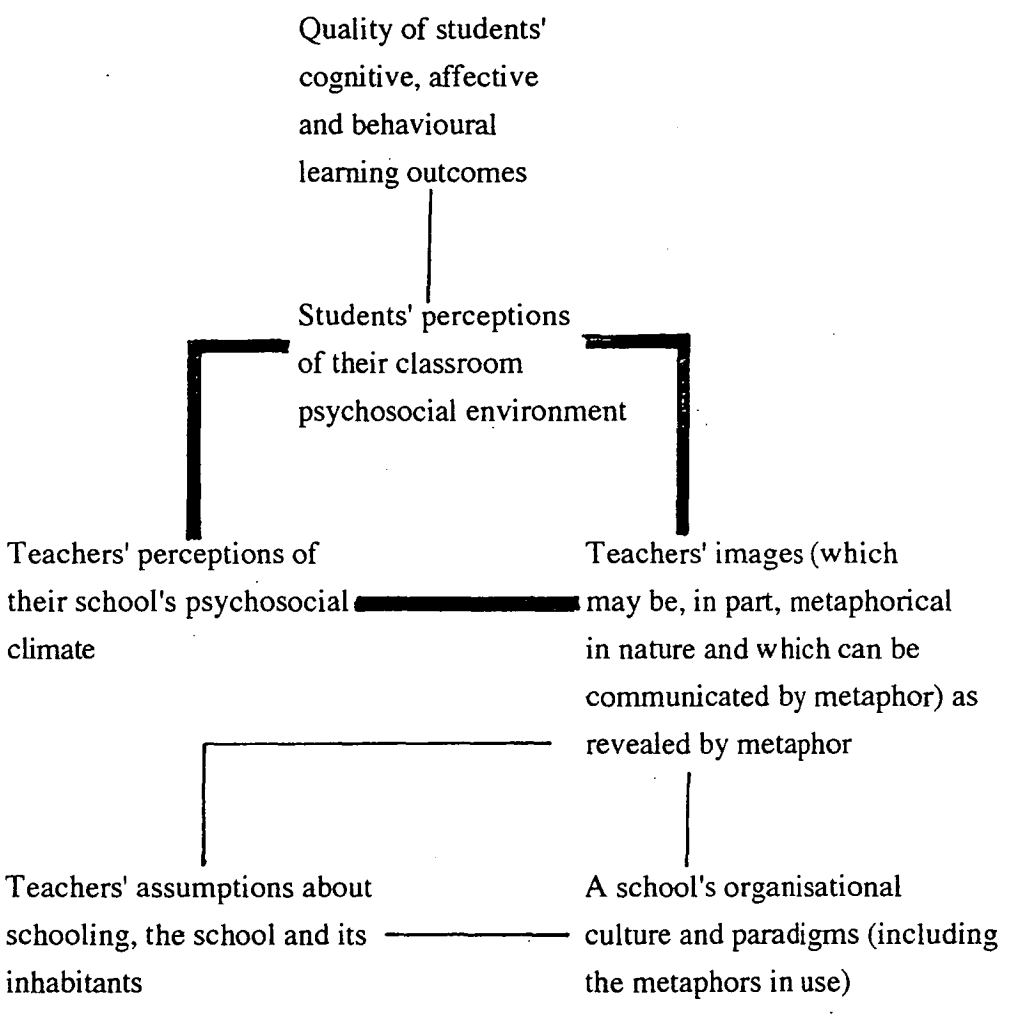

Figure 1
A Sketch of the Conceptual Framework of the Study

There are many issues under debate in education today. Some of these are concerned with matters such as school governance, gender equity, retention, national curriculum, aboriginality, multi-culturalism and (still) educational standards. Any of these could have been investigated as part of a study such as this. However, one issue that continues to interest many people, in Australia at least, concerns the transition of

students between the various levels of schooling - including from primary to junior secondary, from junior secondary to senior secondary, and from senior secondary to tertiary. Consequently, opportunity is taken in this study to examine aspects of the transition of students from the Primary level to the junior Secondary level, and so the samples are drawn from students and teachers studying or teaching in the Grade 5 - 8 range. The analyses are carried out on the data overall and also on the data following a split of them on a Primary-Secondary basis. However the thesis does not represent a study of students in transition *per se*.

The terms "climate" and "environment" are regarded as being synonymous, however to avoid confusion, wherever possible when the school level is the focus of attention the term "climate" is favoured, while "environment" is reserved for use when the classroom level is under scrutiny. Further, these terms are used here in reference to a set of important psychosocial dimensions of schools and classrooms. These dimensions, following Moos (for example, 1974a, 1974b, 1979, 1987), concern the manner in which people interact with and support each other and involve themselves in the setting, the basic directions in which personal self-enhancement occurs, and the manner in which the system maintains itself and responds to change.

The study could have employed a number of methodologies. For example, trained observers could have been employed to provide "detached" and "objective" descriptions of school climates and classroom environments. Alternatively, the researcher could have become a participant in the various settings, involving himself intimately within the rich and complex tapestries which we know schools and classrooms to be. These sorts of approaches were rejected in favour of pencil and paper questionnaires which have been central to the tradition of environment assessment developed by researchers such as Moos, Fisher, Fraser and Walberg who are referred to so frequently throughout this report.

Similarly, teachers' images and metaphors could have been probed through a process akin to the archeologist's "dig" technique. On the other hand in-depth analyses could have been made of teachers' oral and written language in use in order to 'deconstruct' it (Murdoch, 1992, p. 185 ff) and so reveal deep meanings of which they may be unaware. These sorts of approaches do not lend themselves readily to large-scale enquiry and, again, the pencil and paper questionnaire technique was chosen as the major tool.

A sample (representative in many respects, but not selected randomly) of 162 teachers from 48 schools in Tasmania completed questionnaires to describe their school climate and their image of their school, and students of one class being taught by each of these teachers (thus a total of 162 classes) completed a questionnaire to describe their classroom environment. One of these questionnaires (*School Level Environment Questionnaire* - SLEQ) was already in existence, however it was revalidated as part of this particular study. Another of the questionnaires (*My Class Environment* - MCE) was developed by this researcher by modifying and amalgamating several pre-existing instruments, and, again, was validated as part of the study. The third questionnaire (*Images of Schools through Metaphor* - ISM) was developed specifically for this study through an intricate process and underwent a rather extensive validation process. In addition to the 162 teachers and classes involved in the study proper, a number of other teachers and classes were involved on the fringes of the study and the data generated by their involvement were employed in the validation of the questionnaires.

A feature of research into matters related to school climate and classroom environment has been that some investigations have involved assessment of the climate or environment as it actually is (according to the teachers or students concerned) and, simultaneously, assessment of the climate or environment as it is preferred by them. This approach has been based on a person-environment fit hypothesis that suggests that people function best when there is close congruence between the climate or environment as it actually is and as it is preferred by them. Investigations following this line of reasoning have employed questionnaires in two forms - an "Actual" form and a "Preferred" form. Many Tasmanian school Principals and teachers are familiar with this approach and so the opportunity was taken to gather data which reflected the teachers' preferred school climate and image of school and students' preferred classroom environment as well as data which reflect those aspects as they actually are. However, while the data indicating the preferred state of affairs were used to validate or revalidate the relevant questionnaires, the data lie outside the study proper.

Chapter 2 reviews the major writings in the field of school climate and classroom environment; overviews the relevant literature concerning image and metaphor; touches briefly on the literature concerning possible sources of people's images and assumptions, including the nature of organisational culture and paradigms; and outlines major contributions in the body of literature which addresses students' transition between levels of schooling. It is important to note that the nature of the research questions bounded the literature review. As a consequence the review does not extend to a coverage of the "post-modernist" or "naturalistic" contributions which attend to

"thick description" and "interpretation of meaning" which can be products of methodologies such as case studies, with their "emergent" designs, and their goals of investigating questions such as:

> How does one person make sense out of what the other person is doing, so that he or she knows how to respond? What are the internal dynamics by which a person directs his or her actions or words? . . . How does an outside observer make sense of what is transpiring between two or more human actors? (Starratt, 1993).

If other researchers, however, take up some of the suggestions for future research presented in the final chapter here, they will need to examine the body of literature which underpins this alternative tradition.

Chapter 3 pays attention to the methodology adopted for the study. The chapter is divided into three major sections. The first describes how the samples were selected and indicates the nature of them in terms of schools, teachers and students involved. The second describes the various procedures employed in acquiring, scoring and analysing the data. The third explains in considerable detail the nature, development and validation of the various questionnaires.

The results of the study are numerous and diverse in nature. Thus it was decided to organise the results and discussion concerning each of the three research questions into separate chapters. Therefore Chapter 4 presents and discusses the results concerning the first research question. Similarly, Chapters 5 and 6 present and discuss the results concerning the second and third research questions in turn.

Chapter 7 attempts to draw a number of conclusions regarding the findings of the study and the adequacy of the methodology which was employed. This chapter also points to some implications for school leadership and management and suggests several directions for future research.

Chapter 2

Literature Review

This chapter overviews the literature which underpins and informs the study. The first section attends to relevant literature in the area of organisational climate or environment. As indicated in the introduction, the terms "climate" and "environment" are, at times, used interchangeably, except, in order to avoid confusion, when the school level is being addressed, the term climate is always used, while when attention is focussed on the classroom level the term environment is always adopted. Other, perhaps more colloquial, terms which may be regarded as synonymous with climate and environment, such as tone, atmosphere, feel and ambience are avoided. The review then turns to a consideration of a number of aspects regarding image and metaphor. The penultimate section provides a relatively brief overview of the literature which attends to the notions "world hypotheses", "paradigms", "mindscapes" and "organisational culture". The chapter concludes with a concise summary of the literature which is relevant to the debate concerning students' transition from one level of schooling to the next.

2.1 Climate and Environment

2.1.1 Background

The origins of the contemporary study of organisational climate can be traced to several significant contributions. The first was by Lewin (1935, p. 12) who held that 'One can hope to understand the forces that govern behavior only if one includes in the representation the whole psychological situation'. He coined the term "psychological life space" in order to 'indicate the totality of facts which determine the behavior of an individual at a certain moment' (1935, p. 12). Lewin (1935) broke this life space into two parts: 1) the person (P) and 2) the person's environment (E), and proposed the formula B = f(P,E) to guide one's thinking about behaviour (B) such as actions, emotions and expressions.

The second contribution was by Murray (1938), who proposed that behaviour depends upon, on the one hand, needs or drives which are personality characteristics related to goal attainment, and the press of an object in the environment - such as 'foods, poisons, sensuous patterns, supports, harbingers of danger, friends, guides, enemies, suppliants that are prospective of certain consequences if approached, manipulated, embraced, commanded, flattered, obeyed or otherwise responded to' (1938, p. 121), on the other.

Getzels and Guba were significant contributors too. They set forth a psychosocial theory in which two dimensions, the personal need-dispositions of organisational members and the organisational expectations held of those members, were seen 'at once conceptually independent and phenomenally interactive' (1957, p. 424). Over time this model has been elaborated upon, with the addition, for example, of a culture-ethos-values dimension (Getzels and Thelen, 1960; Williams, 1974) and of organism-constitution-potentialities and group-climate-intentions dimensions (Getzels and Thelen, 1960).

Pace and Stern (1958) brought Murray's Needs-Press model into the study of higher education when they employed Stern's *Activities Index* (which focussed on the 30 needs, such as need for Order, need for Play, and need for Affiliation, in Murray's taxonomy), and developed the corresponding *College Characteristics Index* (CCI) which matched a press scale to each of the needs scales. Owens (1987) reported on an adaptation of CCI, called the *Organizational Climate Index* (OCI), by Stern and Steinhoff which allows a school's Development Press (the extent to which intellectual and interpersonal activities are emphasised) and Control Press (the extent to which orderliness and structure are emphasised) to be identified.

Another significant contribution was provided by Halpin and Croft (1963) when they identified two clusters of factors which teachers indicated were central to describing the organisational climate of a school. The first cluster focussed on teachers as a group and pointed to four factors being important: *Intimacy* (the degree of social cohesiveness among teachers in the school), *Disengagement* (the extent to which teachers are committed to achieving the goals of the school), *Esprit* (the quality of the morale of the group) and *Hindrance* (the extent to which rules, paper work and the like interfere with their teaching role). The second cluster focussed on the teachers' perceptions of the school's Principal. Again, four factors were highlighted: *Thrust* (by which the Principal sets a hard-working example), *Consideration* (through which the Principal is seen as treating teachers with dignity and concern), *Aloofness* (the extent to which the Principal is seen as cold and distant or warm and friendly), and *Production Emphasis* (the extent to which the Principal directs and demands in order to ensure teachers work hard). This framework was the basis for the development of Halpin and Croft's *Organizational Climate Description Questionnaire* (OCDQ) which enabled them to identify a range of school climates which extended from "closed" on the one hand to "open" on the other. An excellent, readily accessible overview of work in the tradition of Halpin and Croft is provided in Hoy and Miskel (1987).

In the organisational world outside schools, Likert (1961) identified four "management systems" describable in terms of climate and leadership behaviour. These extended from System 1: *Exploitive-Authoritative*, through System 2: *Benevolent-Authoritative* and System 3: *Consultative*, to System 4: *Participative Group*. Owens (1987) reported that Likert and Likert also developed *Profile of a School* (POS) which enables users to portray teachers' and students' perceptions of aspects such as team co-operation, teachers' receptivity to students' ideas, trust by and in the Principal, and student attitude toward school, and, consequently, identify the extent to which the four management systems are exhibited in the school.

Much, too, has been learnt from the studies of Moos and his colleagues of a variety of settings, including families; work milieus; social, task-oriented, psychotherapy and mutual support groups; high school classrooms; university student and specialised living groups for older persons; hospital-based treatment programs; sheltered workshops and halfway houses; military units; and juvenile and adult correctional facilities. The conceptual framework built as a result of these studies and a number of Moos-based instruments are overviewed later in this chapter, while full details, including applications for the instruments, explanations of a range of concepts and methods and a discussion of a set of practical issues are overviewed in a convenient form by Moos (1974a and 1987).

Of interest for the study under review here is Moos' (1980) model of classroom environment which showed four interacting domains (structure and organisation, cognitive processes, student characteristics, and teacher characteristics) being important in determining student outcomes of cognitive, affective and social types. Similarly, Walberg's (1970, 1984) model for researching instruction and enhancing productivity of schools is valuable since it pointed to three significant construct domains - instruction, aptitude and environment (including the environment of the home, of the classroom, and of the peer group) - which influence one another, which influence affective, behavioural and cognitive learning, and which, in turn, are influenced by the quality of the students' learning.

Carrying on from this early work, over the past decade or so Barry Fraser of Curtin University of Technology and his colleagues (in particular Darrell Fisher most latterly of the University of Tasmania at Launceston) have, along with Moos and Walberg, elaborated upon, and refined, some of the early seminal work alluded to above. The following sub-sections focus in some detail on several aspects which are particularly germane to the present study.

2.1.2 Psychosocial Environment

This study probes aspects of the psychosocial environment, as conceptualised by Moos (1974a). Moos saw psychosocial environments consisting of three sets of broad dimensions, namely those dimensions which:

1) assess the nature and intensity of **personal relationships**, such as how involved the people are, how much they help each other and how spontaneously they express their feelings in a setting;
2) tap the extent to which **personal development** in areas such as independence and achievement is encouraged or stifled; and
3) indicate **system maintenance and system change** aspects such as how orderly and organised the setting is, how clear expectations for behaviour and outcomes are, how much control is maintained and how responsive the system is to change.

Not only is this particular conceptualisation adopted here because it fits well with the emergent Fisher/Fraser/Moos/Walberg tradition mentioned above, but its adoption also helps to minimise confusion. The study reported in this dissertation is based upon the belief that organisational climate and organisational culture are different constructs, and this is consistent with Moos' framework. It is instructive to compare this with an alternative conceptualisation, within which the climate and culture aspects were blended to an extent, which was offered by Tagiuri (1968). Here the climate was seen to consist of four broad dimensions, namely: material and physical aspects - **the ecology**; social aspects concerned with the presence of people - **the milieu**; patterned relationships between people in the setting - **the social system**; and the patterns of beliefs, values and meanings which pervade the organisation - **the culture**.

2.1.3 Alpha Press and Beta Press

Murray (1938) distinguished between the environment as assessed and described by a detached observer and the environment as perceived and reported by inhabitants of the setting. To the former he gave the name **alpha press** and to the latter he attached the label **beta press**. Fraser (1986) reported that this distinction had been extended by Stern, Stein and Bloom who indicated that **private** beta press, the idiosyncratic view that each inhabitant has of the environment, could differ from **consensual** beta press which depicts the view of the environment that inhabitants share.

It is clear that a researcher's choice between investigating alpha press or beta press aspects of environment is an important one, and Anderson and Walberg's advice (1968, p. 179) seems to be especially apt :

> Previous bivariate research has shown little relationship between such things as supervisor or observer ratings and tabulations of teacher behaviors on the one hand and learning criteria on the other. Certainly none of these measures has accounted for much more than ten percent of criterion variance. Despite the unreliabilities of the climate predictors, the sampling inadequacies and the preliminary nature of this study, we suspect that since students are the primary receivers of psychological influence from their teacher and fellow students, they are more adept at perceiving, judging and rating those multivariate aspects of the socio-emotional climate of their classes which make for their own learning.

2.1.4 School Climate and Classroom Environment

This study attends to aspects of climate or environment at both the school and the classroom levels. Some researchers, according to Fraser (1986), have conceptualised the school climate as the sum of the classroom environments within the school. Here, though, school climate is taken to be distinctive from that of the classroom, to be broader in scope and more global in its perspective and to consist of the psychosocial perceptions of teachers rather than of students. The early works of Pace and Stern, Halpin and Croft, and Likert introduced earlier were, clearly, concerned with climate at the wider organisational level, and, consequently, have been of interest primarily to scholars in the area of educational administration rather than of, say, pedagogy. On the other hand, the works of Fraser, Walberg, Fisher and others hinted at above have tended to focus on classroom environments, although excursions into examination of school climates by them are not unknown (e.g., Docker and Fisher, 1985; Fraser, Docker and Fisher, 1987; Fraser, Docker and Fisher, 1988).

Despite obvious overlaps in the conceptual frameworks which underpin the exploration of school climates and classroom environments (especially where Moos' conceptualisation is employed), rarely have researchers combined the study of school climates and classroom environments, although, again, there are exceptions such as the study reported by Fraser and Rentoul (1982).

2.1.5 School Climate and School Outcomes

It is important to study school matters. This holds despite (or perhaps in spite) of the often cited Coleman Report (1966) which had considerable influence from the date of its publication through the 1970's and into the 1980's and beyond. Coleman and his colleagues found that, in effect, schools did not really matter, because the students' home background and socio-economic status, and their consequent sense of self-worth, were so dominant in determining their schooling outcomes. The power of this claim ultimately prompted the growth of a counter-political and pro-schooling force, which

came to be known as the "effective schools movement". The effective schools model which emerged was summarised by Ralph and Fennessey (1983, p. 694) as follows:

> The characteristics vary, but the effective schools model typically involves some combination of: 1) strong administrative leadership, 2) a safe and orderly school climate, 3) an emphasis on basic academic skills, 4) high teacher expectations for all students, and 5) a system for monitoring and assessing pupil performance.

It is beyond the scope of this report to discuss each of these five factors (or, indeed, to address the notion or the politics of "effectiveness"), but the second element of the above model requires further attention.

Anderson (1982) summed up the situation concerning school climate at the time quite comprehensively:

> Unifying threads in school climate research are few and fragile; nevertheless, some agreement does exist: a) schools do possess something called climate, unique to each organization; b) such differences, while discernible, are elusive, complex, and difficult to describe and measure; c) climate is influenced by, but not a proxy for, particular dimensions of the school such as student body characteristics, or classroom processes; d) climate affects many student outcomes, including cognitive and affective behaviour, values, and personal growth and satisfaction; and e) understanding the influence of climate will improve the understanding and prediction of student behavior. Beyond this point, researchers cannot agree on either the possibility or desirability of identifying that elusive Beast.

Despite Anderson's caution, Mulford (1986) indicated that conscious attention to a safe, positive, ordered school climate was found to be one of eight common features of effective schools as identified by the Australian studies of Mellor and Chapman, Caldwell and Misko and Hyde and Werner. Similarly, Mortimore et al. (1988) found that effective primary schools in Britain were characterised by, among other things, a positive climate, while Renihan and Renihan (1984) found through their meta-analysis of schools in USA that effective schools paid specific attention to, *inter alia*, the creation and maintenance of a climate which is conducive to good quality learning. Duignan (1986) also provided a comprehensive review of the so-called "effective schools" literature, allocating significant space to school climate, and drew some important conclusions, although, quite correctly many would judge, he appears somewhat equivocal about the status of that literature.

Several important experimental studies have been undertaken to investigate associations between school climate and student outcomes. Brookover et al. (1978), for example,

reported a study in Michigan, USA, which involved assessment of 1) perceptions on five dimensions, such as *Sense of Academic Futility*, *Academic Norms* and *Expectations*, of more than 8,000 Grade 4 and 5 students; 2) perceptions on five dimensions, such as *Academic Futility* and *Principal's Expectations*, of more than 300 of their teachers; and 3) perceptions on four dimensions, such as *Parent Concern and Expectations* and *Efforts to Improve*, of almost 70 Principals. Numerous significant correlations between these 14 dimensions and students' achievement were identified, and variance in achievement attributable to school climate was found to be considerable.

Walberg (1982, p. 297) reported a study of a sample of schools in Chicago, USA, by Coughlan and Cooke, which showed that teachers in schools with the greatest gains in student achievement perceived their schools as being more educationally effective than did teachers in schools with the lowest achievement gains, and, further, saw themselves as having more constructive relationships with their Principal and community and a greater voice in the formulation and execution of the educational program. Walberg (1982, p. 297) went on to indicate that subsequent research in another USA setting using Coughlan and Cooke's instruments pointed to significant associations (after school attendance, socio-economic status and school size were controlled statistically) between teacher perceptions of staff morale on the one hand, and student achievement and student perceptions of school climate on the other.

The Fraser and Rentoul (1982) study referred to above, with a fairly small sample of 34 teachers in New South Wales, Australia, indicated that when teachers perceived greater *Innovation* and *Affiliation* in their school, students perceived greater *Personalisation* in their classroom. Similarly, when teachers perceived more *Professional Interest* and greater *Achievement Orientation* in their school, it was found that students perceived greater classroom *Independence* and *Investigation.*

Fraser (1986) outlined several other examples of research undertaken in this field, including that by Perkins which involved a sample of more than 3,700 Grade 4 students and almost 1,000 of their teachers in 42 elementary schools in USA. Perkins, it seems, found significant correlations between 13 of 14 scales assessing teachers' perceptions of school climate and students' achievement in the vocabulary, reading, language, work study skills, and mathematics aspects of the Iowa Test of Basic Skills. Fraser indicated, too, that the set of 14 climate scales accounted for more than half of the variance for the average daily attendance criterion and up to three quarters of the variance in the Iowa test scores.

Fraser, Docker and Fisher (1987) described research by McDill, Rigsby and Meyers who employed scales derived by factor analysis of items based in part on Pace and Stern's *College Characteristics Index* (CCI) and Stern's adaptation of CCI, namely the *High School Characteristics Index* (HSCI) in order to explore climate-achievement relationships. The sample consisted of more than 20,000 students and 1,000 teachers in USA, and it was concluded that 80 percent of variance in achievement could be explained by *Academic Emulation, Student Perception of Intellectualism-Estheticism, Cohesive and Egalitarian Estheticism, Scientism, Humanistic Excellence,* and *Academically Oriented Student Status System.* Further analysis, it seems, indicated that each of the six environment scales (after controlling statistically for father's education, student academic values and student ability) was significantly associated with mathematics achievement and that all but *Scientism* was related significantly to students' plans concerning college.

Finally for our purposes here, Sergiovanni (1991, p. 217) held that if climate is viewed as a 'condition representing a school's capacity to act with efficiency, enthusiasm and vigor' a number of generalisations can be made. These include:

1. It is unlikely that school improvement can be achieved on a sustained basis without the presence of a favourable school climate.
2. Favourable school climates alone cannot bring about school improvement.
3. Climate energy must be directed in the correct direction by school leaders in order to ensure school improvement.

2.1.6 Classroom Environment and Student Outcomes

While one may remain somewhat equivocal about the existence of close or strong links between school-level factors, such as climate, and student learning, a considerable, and impressive body of research points to the belief that there is

> . . . convincing and consistent support for the predictive validity of student perceptions [of classroom environment] in accounting for appreciable amounts of variance in learning outcomes, often beyond that attributable to student characteristics such as pretest performance, general ability or both (Fraser, 1986, p. 72).

Some of the research which supports this sort of claim is described briefly below.

First, the study of Walberg and Anderson (1968) demonstrated, with a sample of more than 2,000 students following Harvard Project Physics in 76 classrooms in USA, a number of significant correlations between, on the one hand, structural and affective aspects of classroom environment such as *Democracy, Goal Direction, Formality,*

Satisfaction and *Friction* (in this latter case, negative correlations), and, on the other, cognitive outcomes (such as understanding of science), affective outcomes (such as regarding laboratory sessions as being important and fun), and behavioural outcomes concerned with physics activities (such as tinkering).

Second, Anderson and Walberg (1968) surveyed students in 49 classes engaged in Harvard Project Physics and obtained results which included significant correlations between outcomes and environment dimensions and which pointed, for example, to some 46 percent of variance in physics achievement being accounted for by the nature of the classroom environment.

Third, Fisher and Fraser (undated) reported upon an investigation of a sample of more than 1,083 students in 116 science classrooms in Australia and concluded that there were substantial and statistically significant correlations between student learning outcomes of various types and their perceptions of the classroom environment as revealed by the *Classroom Environment Scale*. In particular, they found that an emphasis upon *Order and Organisation* in the classroom is 'likely to have a positive influence on student achievement of a wide variety of different aims' (p. 9).

Fourth, a meta-analysis conducted by Haertel et al. (1981), which involved 734 correlations obtained from 12 studies of ten data sets in eight subject areas, involving in excess of 17,000 students in more than 800 classrooms in four nations, indicated that student learning outcomes were associated positively with certain classroom environment aspects, such as *Cohesiveness* and *Satisfaction*, and negatively associated with other aspects such as *Apathy, Friction* and *Disorganisation.*

Fifth, Walberg et al. (1981, p. 247), following data-gathering from a large sample of 13 year-old students who were administered a science achievement test and other measures in the National Assessment of Education Progress, claimed that consistently large, positive, and significant weights for the class psychosocial environment confirm the findings of Haertel et al. Indeed, Walberg et al. (1981, p. 233) concluded that 'Under a stringent probe . . . the class social-psychological environment appears as the only unequivocal cause of science learning in the data [which also included measures of age, ability, motivation, quality and quantity of teaching and home environment]'.

Sixth, Fraser and Fisher (1982a) explored relationships between classroom environment (as revealed by the responses of 2,305 12 year old students in 100 science classrooms in 30 schools in Tasmania, Australia, to the *My Class Inventory*

instrument) and performance in two cognitive areas (firstly, skill in reading various scales and, secondly, understanding of the nature of science) and one affective outcome (interest in science) and concluded that 'Taken together, the . . . analyses confirmed the existence of sizeable and statistically significant associations between students' learning outcomes and their classroom environment perceptions as measured by MCI' (p. 376).

Seventh, Fisher and Fraser (1983a) reported results of a study of 2,175 Grade 8 and 9 science students in 116 classrooms in Tasmania, Australia. They calculated simple, multiple and canonical correlations between classroom environment dimensions (as assessed by students' responses to *Classroom Environment Scale)* and students' outcomes (assessed through three cognitive and six affective measures) and concluded that there was consistent significant support for the belief that there were overall relationships between the two aspects. Fraser and Fisher (1982b) reported other results from a survey of the same sample, but using another environment assessment device - the *Individualized Classroom Environment Questionnaire* - and indicated that the results were not dissimilar to those outlined above.

Finally, Walberg (1984) claimed that the climate of the classroom social group was one of nine factors which need to be optimised to increase students' affective, behavioural and cognitive learning. He provided summaries of numerical results of about 3,000 studies conducted over the previous 50 years. These summaries for 41 factors were shown as *effect sizes* (defined by Bloom, 1984, p. 6, as standardised results in terms of differences between experimental and control groups divided by the standard deviation of the control group), which ranged from a high of 1.17 (for Skinnerian reinforcement or reward for correct performance) to a low -0.12 (for mainstreaming). Classroom environment yielded a score of 0.6, which prompted Walberg to conclude that this factor 'strongly predicts end-of-course measures of affective, behavioral and cognitive learning' (Walberg, 1984, p. 24).

Fraser (1986) surveyed in some depth more than 50 studies undertaken since 1968 which tested associations between student outcomes and classroom environment and tabulated, in convenient form (pp. 89-92), details including researchers' names, instruments used, outcome measures employed and size and type of student samples.

2.1.7 Classroom Environment Perceptions as Criterion Variables

There has also been considerable research activity which employed perceptions of classroom environment as indexes, or criterion variables, of the state of a variety of other phenomena. This research is addressed briefly in this sub-section.

Fraser (1986, pp. 122-123) provided a table which listed 47 studies, spanning from 1962 to 1984, which had employed instruments such as *Classroom Environment Scale*, *Individualised Classroom Environment Questionnaire*, *My Class Inventory*, *Learning Environment Inventory*, and *College Characteristics Inventory* to evaluate a number of aspects of schooling. These included single-sex versus coeducational and independent versus public schools, changes over time of teachers' preferences for individualising classrooms, teacher competency, impact of teacher personality and class size, and differences between school and college environments as perceived by students in transition. Fraser and Fisher (1982a, p. 374) concluded that studies such as those alluded to here

> . . . show that, when used as criterion variables in . . . curriculum evaluation research, student perceptions of classroom environment characteristics have differentiated revealingly, usefully and appreciably between classrooms following alternative curriculum materials or instructional strategies. Other studies of factors affecting classroom environment have established interesting associations between classroom perceptions and class size, grade level, subject matter and type of school.

A recent example of the use of classroom environment as a criterion variable was provided by Speth et al. (1992) who described an evaluation of satellite technology in delivery of instruction to geographically isolated and economically disadvantaged rural and ethnic minority groups in USA. Similarly, Randhawa (1991) demonstrated the sensitivity of *Learning Environment Inventory* in detecting the effect of infused religious values in the academic curriculum in parochial and secular schools in a Canadian city. Fraser (1991) also indicated that the power of instruments which use perceptions of the environment to act as criterion variables is considerable when they are available in a variety of forms, such as student-actual, student-preferred, teacher-actual and teacher-preferred. Recent research in Britain reported by Burden and Fraser (1992) provides sound support for such a claim.

2.1.8 Person-Environment Fit

Despite the significance of contributions by pioneers such as Lewin (1935) and Murray (1938), Fraser (1986) indicated that, until rather recent times, researchers have tended to separate the person and the environment in their explorations. Exceptions to this tendency can be noted however. For example, the research conducted by Pace and Stern (1958) referred to above used parallel instruments to assess college environment and personal needs variables. Similarly, Marjoribanks (1980), using a sample of more than 500 12 year-old students in eight schools in Australia, explored associations between students' affective outcomes and their perceptions of the regulatory, instructional, imaginative and interpersonal aspects of the environment on the one hand,

and intellectual ability and personality characteristics on the other, and concluded that the students' outcomes and their perceptions of those environmental aspects were associated differently, depending upon the nature of the several personal variables.

The seminal work in this area, however, is probably reflected in the publications by Fisher and Fraser (1983b) and Fraser and Fisher (1983b, 1983c). Two classroom environment assessment instruments, *Individualized Classroom Environment Questionnaire* and *Classroom Environment Scale*, were used in actual and preferred formats in 116 grade 8 and 9 science classrooms in Tasmania, Australia. Particular strengths of this research include assessment of the classroom environment by a number of continuous variables, employment of dimensions which validly describe personal **and** environmental factors, and the use of powerful multiple regression analysis techniques. An important conclusion reached is:

> Overall, the present promising findings suggest that actual-preferred congruence (or person-environment fit) at the class level could be as important as the nature of the actual classroom environment in predicting class achievement of important cognitive and affective aims (Fraser and Fisher, 1983b, p. 311).

Research which investigates person-climate fit and student/teacher outcomes at the school level appears not to have been undertaken, even though the conceptual framework and the tools are available (see, for example, Docker and Fisher, 1985; Fraser, Docker and Fisher, 1988).

2.1.9 Assessment of School Climates and Classroom Environments

Walberg (1982, p. 295) summed up much of the power of classroom environment assessment in the following sentence:

> Because learning environment scales provide a predictively valid index of the amount of learning gains made during the academic year as indexed by standard tests, the scales can occasionally substitute for the standardized achievement tests themselves.

The nature of particular climates and environments can be assessed in a number of ways. Haertel and Walberg (1988), for example, identified four methodologies:

1. low-inference observational systems which feature counts of predefined behaviours such as the number of teacher smiles in a given time span;
2. high-inference observational systems which require trained observers to make judgements about the meaning of what they see, such as how friendly a teacher appears to be towards students in the classroom;

3. narrative and ethnographic observational systems which may employ supplementary interviews and examination of a variety of artefacts to yield thick, vivid descriptions; and
4. paper-and-pencil assessments by participants which reveal their perceptions of the climate as it is or as it would be ideally.

The latter approach, with its advantages of economy, its employment of large numbers of raters (the students or teachers who inhabit the classrooms or the schools) who know the environment or climate well, and its ability to generate data which are amenable to statistical analysis, is adopted in this study.

Reviews of a range of paper-and-pencil instruments have been provided in a convenient form by, for example, Fraser (1981a, 1986, 1991) and Fraser and Fisher (1983a). These reviews concentrate on instruments which have been developed on the basis of Moos' conceptualisation of psychosocial environments as outlined above, although Fraser (1986) also alluded to several instruments which have emerged from other traditions.

A number of Moos-based instruments for assessing classroom environments and school climates are described briefly below. Validation data and illustrations of their use are generally available in the references supplied and are not repeated here. However some validation data relevant to LEI and MCI are presented in Chapter 3. Descriptions of the two climate/environment instruments used in the study under review in this thesis are reserved for Chapter 3.

2.1.9.1 Learning Environment Inventory (LEI)

The development of LEI began in the 1960's. The version published by Fraser and Fisher (1983a) contains 105 items which assess 15 environment scales. These scales are *Cohesiveness, Friction, Favouritism, Cliqueness, Satisfaction* and *Apathy* (in Moos' relationships dimensions); *Speed, Difficulty* and *Competitiveness* (in Moos' personal development dimensions); and *Diversity, Formality, Material Environment, Goal Direction, Disorganisation* and *Democracy* (in Moos' system maintenance and system change dimensions). The items focus on consensual beta press perspectives such as "All students know each other well" rather than private beta press perspectives which would require items such as "I know all students well". While LEI was developed for completion by secondary school students the format does not prevent its administration to teachers. Respondents express agreement or disagreement (on a separate score sheet) to each item on a four-point scale containing Strongly Disagree,

Disagree, Agree, Strongly Agree alternatives. Approximately 25 percent of items are written in a negative format and thus require reversed scoring procedures. LEI is available only in a form to assess the environment as it actually is, but could be rewritten with ease to generate a form to assess the environment as it would be preferred.

2.1.9.2 My Class Inventory (MCI)

MCI is a shortened and simplified version of LEI for administration to upper primary and lower secondary school students. The sample provided by Fraser and Fisher (1983a) contains 38 items, requiring Yes/No responses (on the questionnaire itself), which assess the scales *Cohesiveness*, *Friction* and *Satisfaction* in Moos' relationships dimensions, and *Difficulty* and *Competitiveness* in his personal development dimensions. Approximately 20 percent of the items require reverse scoring procedures, and the instrument is available in the actual form only (but, again, simple modifications would make it usable for assessing classroom environments as students think they ought be).

2.1.9.3 Individualized Classroom Environment Questionnaire (ICEQ)

Fraser (1986) indicated that ICEQ was designed originally to be used in four different forms (student actual, student preferred, teacher actual and teacher preferred), and for use in secondary classrooms which were meant to be individualised rather than conventional. The version supplied by Fraser and Fisher (1983a) employs ten items to assess each of five scales, namely, *Personalisation* and *Participation* (Moos' relationship dimensions), *Independence* and *Investigation* (Moos' personal development dimensions) and *Differentiation* (Moos' system maintenance and system change dimensions). Students or teachers respond on a separate answer sheet by selecting Almost Never, Seldom, Sometimes, Often or Very Often from a five point scale. Approximately 40 percent of items require reversed scoring procedures, while consensual beta press is addressed through items such as "The teacher is unfriendly to students".

2.1.9.4 Classroom Environment Scale (CES)

CES, like ICEQ, was designed so that both students and teachers at the secondary school level could provide a picture of their actual and preferred classroom environment. CES (as shown in Fraser and Fisher, 1983a) addresses nine environmental scales (*Involvement*, *Affiliation* and *Teacher Support* in Moos' relationship dimensions; *Task Orientation* and *Competition* in his personal development dimensions; and *Order and Organisation*, *Rule Clarity*, *Teacher Control* and *Innovation*

in the system maintenance and system change dimensions). Respondents are invited to choose True/False for 90 items and to record their choices on a separate answer sheet. Approximately 40 percent of items require a reversed scoring procedure. Consensual beta press is addressed through items such as "Students really enjoy this class".

2.1.9.5 College and University Classroom Environment Inventory (CUCEI)

CUCEI is for use in small group seminar/tutorial classes in higher education and, again, was designed so that perceptions of students and teachers of their actual and preferred classroom environment could be assessed. It contains 49 items, requiring Strongly Agree, Agree, Disagree, Strongly Disagree responses, which attend to seven aspects of the environment: *Personalisation, Involvement, Student Cohesiveness* and *Satisfaction* (relationships dimensions); *Task Orientation* (personal development dimensions); and *Innovation* and *Individualisation* (system maintenance and system change dimensions). Responses are made on a separate sheet and, as with the other instruments outlined above, the items attend to consensual beta press through items such as "Students enjoy going to this class".

2.1.9.6 Science Laboratory Environment Inventory (SLEI)

SLEI is one of the newest instruments. Its development and validation was described by Fraser, Giddings and McRobbie (1992). The instrument is available in two forms, actual and preferred, and focuses on five scales: *Student Cohesiveness* (relationship dimensions), *Open-endedness* and *Integration* (personal development dimensions), *Rule Clarity* and *Material Environment* (system maintenance and system change dimensions). Each of these scales is addressed through seven items requiring responses selected from Almost Never, Seldom, Sometimes, Often and Very Often. Space is provided on the forms themselves for responses. One significant way in which SLEI differs from the other instruments outlined here is that it has been developed in two versions to address both consensual beta press and private beta press.

2.1.9.7 Short Forms

In the interest of economy, Fraser and Fisher (1983a, 1983d) developed short forms of CES, ICEQ and MCI. CES (short form) was reduced to six scales assessed by 4 items each; ICEQ (short form) retained five scales but was reduced to a total of 25 items; while MCI (short form) was reduced, similarly, to a total of 25 items while retaining its five scales. While satisfactory validation data are reported on these short forms, Fraser (1986, p. 51) indicated, nevertheless, that they are less reliable than the corresponding

long forms and should not be used when individual student's perceptions are the target of enquiry.

2.1.9.8 Work Environment Scale (WES)

WES (Moos, 1974b) was designed to assess the climate of all types of work units. Beginning as Form A (with 200 items) it was ultimately refined to become Form R (real), Form I (ideal), and Form E (expectations) with each containing substantially the same 90 items. These 90 items attend to ten scales, namely *Involvement, Peer Cohesion* and *Staff Support* (relationships dimensions); *Autonomy* and *Task Orientation* (personal growth dimensions); and *Work Pressure, Clarity, Control, Innovation* and *Physical Comfort* (system maintenance and system change dimensions). The first 40 items in each of the regular 90 item versions can be used, collectively, as short versions of the R, I and E forms. WES seeks responses in a True/False format, a separate answer sheet is employed, and consensual beta press is the target of the items.

2.1.9.9 School Climate Scale (SCS)

Fisher, Docker and Fraser (1986) amended WES through word change (e.g., by replacing "employee" with "teacher") and by adding an additional scale in the relationships dimensions, namely *Student Support*, to generate SCS, which, therefore, has a total of 99 items to assess the 11 scales.

2.1.10 Changing Classroom Environments and School Climates

While there may be merit in activities which explore phenomena which cannot be changed, it might be judged that there is even more merit in activities which can alter certain phenomena in desirable ways and directions. Classroom environments and school climates can be enhanced, and this sub-section presents a brief overview of some of the research which supports this view.

Fraser (1986) summarised in a convenient way the literature which has emerged from teacher-as-action researcher, curriculum evaluation and classroom interaction analysis traditions and will not be repeated here. Instead, an approach emanating from the person-environment fit hypothesis that people function best if they are in their preferred environment is touched on briefly.

Over a decade ago Fraser (1981b) presented a framework for changing environments which has been applied with success in a variety of settings whether they be at the classroom or school levels. This framework contains five steps, namely:

1) assessing the actual and preferred environments using an appropriate instrument;
2) obtaining feedback by scoring the responses to the instrument and drawing profiles to reflect visually the results;
3) engaging in private reflection and discussion with colleagues and students where appropriate in order to consider whether change is desirable and, if so, to generate strategies likely to bring perceptions of the actual environment into closer alignment with the preferred perceptions in one or more scales;
4) intervening for, say, five or six weeks; and
5) reassessing the actual environment in order to detect any intended and unintended changes in the degree of congruence between the actual and preferred environments.

A number of case studies have attested to the efficacy of this approach. For example, Fraser and Deer (1983) reported the use of MCI (Short Form) in a Grade 3 and a Grade 7 classroom; Fisher and Fraser (1985) reported case studies involving the use of CES (Short Form) and MCI (Short Form) with a Grade 9 and a Grade 6 class respectively; Fisher and Grady (1986) reported case studies which involved the use of MCI (Short Form) and CES (Short Form) with a Grade 6 class and a Grade 9 class respectively; Fraser (1986) illustrated the use of ICEQ (Long Form) with a Grade 7 class; while Fisher (1989) demonstrated the use of SCS with the staff of a Tasmanian high school. This researcher is aware of many other such successful endeavours, especially in Tasmania, although the cases have not always been published.

A conclusion that can be reached with considerable confidence is that individual teachers, working alone or in company with colleagues, can move students' perceptions of their classroom environment as it actually is closer to the perceptions they have of the classroom environment as it would be ideally. A similar conclusion can be held with confidence concerning the potential for a school staff to bring about considerable congruence between school-level climate as it is and as it ought be ideally.

2.1.11 Summary

To this stage Chapter 2 has reviewed the relevant literature which attends to aspects of classroom environment and school climate. It was pointed out that research in the area was led by early contributors such as Lewin, Murray, Pace and Stern, Halpin and Croft and Likert, but that more recent endeavours have been characterised strongly by the influence of researchers such as Moos, Walberg, Fraser and Fisher and their colleagues. The review then highlighted Moos' conceptualisation of the psychosocial

environment of human settings, alpha and beta press considerations, and distinctions between classrooms and schools. Considerable space was then allocated to presenting a review of the literature which indicates that school climate and classroom environment are associated with student learning outcomes - with the case for the classroom environment-learning linkage being especially strong. The review then moved to show that the nature of classroom environments has been used as a criterion variable in numerous areas of study. A person-environment fit hypothesis was introduced and then a considerable number of paper-and-pencil instruments were overviewed. Finally, the review pointed to some of the success that has been enjoyed by those who have used instruments such as those outlined in order to bring about closer alignment between actual and preferred environments, that is, to promote a better person-environment fit.

2.2 Image and Metaphor

2.2.1 Background

This section examines the literature which is especially relevant to the notions of image and metaphor. The literature which is referred to mentions "metaphor" in places, "image" in other places, and in other locations, yet, both "metaphor" and "image" as though they were synonyms. The position adopted by this researcher, as indicated in the introductory chapter, is that the mental images which people have and the metaphors which they employ are conceptually different from each other, but the images spoken of may be, in part at least:

1) metaphorical in nature;
2) described or otherwise expressed through metaphor; and
3) acquired through the impact of metaphoric language.

Every endeavour is made to separate the various notions throughout this review, but in order to remain true to the original sources this is not always easy or possible.

It ought be noted, too, that since the research reported here is concerned with image and metaphor in the investigation and management of organisations rather than in matters concerned with literature as such, examples are usually drawn from, and stress is usually placed upon, the former.

To organise the complex task ahead several sub-sections are employed. The first focuses on image; the second which is the most detailed attends to the nature and power of metaphor; the third shows how metaphor and image seem to be linked with each other; the fourth highlights the way language, including metaphor, acts to generate

images within us; while the fifth pays brief attention to the notions of paradigm, mindscape, organisational culture and world hypotheses.

2.2.2 Images That People Have

A search of the literature indicates that interest in people's images has waxed and waned since, at least, the time of Aristotle. Sources such as Kosslyn (1980) tell something of the topic's early history from the perspective of the psychologist and the philosopher, but there is no need to engage with this material here.

Several contributions from the writings of organisational theorists provide useful insights into the notion of mental images. The first was published more than 35 years ago when Boulding (1956) presented the view that individuals have an image of the world which depicts what he or she believes to be true. That is, according to Boulding, a person's image represents his or her *subjective knowledge* of "fact" and "value". Such an image, it was said, varies in certainty or uncertainty, probability or improbability, clarity or vagueness. Further, one's image, according to Boulding, results from 'an active internal organizing principle much as a gene is a principle or entity organizing the growth of bodily structures' (1956, p. 18) and, in addition, acts as a filter to external messages and largely governs his or her behaviour. Image is not a variable, claimed Boulding; instead 'it is a vast and complex set of parameters to which we also have access, even though an imperfect one' (1973, p. viii).

A similar perspective was adopted by Argyris and Schon (1978) when they claimed that all deliberate human action has a cognitive basis and reflects espoused theories and theories-in-use built from norms, strategies and assumptions or models of the world. As far as behaviour in organisations is concerned, espoused or public theories are, they said, reflected in organisational *maps* composed of diagrams of work flow, official patterns of communication and control and the like. Theory-in-use, however, was said to be reflected in personally constructed, but incomplete representations or *images* of organisation.

A third influential view emerged from the book *Images of Organization* , by Morgan (1986), who outlined the view that organisations, since they are complex, ambiguous and paradoxical in nature, can be many things simultaneously, and demonstrated how many of our ideas about organisations emanate from taken-for-granted images. These images, according to Morgan (1986, p. 336) '*are* theories or conceptual frameworks' possessed by organisational members and outsiders.

Boulding indicated that, while organisations tend to move in directions dictated by the images of significant organisational members (the Principal, the Chairperson, the President, the Managing Director perhaps), it is necessary to take cognisance of the claim:

> . . . in the dynamics of an organization all images are important and none can be neglected [and] we must always operate with the concept of an inventory of images and can never replace this inventory by a single image, not even that of the most important person in the organization (1956, p. 63).

From the realm of science came Poincare's view (cited by Miller, 1984, p. 222) that we have a need for thinking in images, images which, according to Miller (1984, p. 222) are '. . . an ingredient essential to scientific research of the highest creativity'. Indeed Murdoch (1992, p. 47) held:

> Historical change is (in part and fundamentally) change of imagery. This is often prompted by scientific discovery. Think of how our idea of our home planet has altered . . . Earth, now, as a travelling spaceship, seen from the outside, vulnerable, lonely, precious.

Finally, it is necessary to understand that a wide range of issues concerning image are of particular interest from a cognitive psychology perspective. Clearly, image is an ill-defined construct, and debate is focussed on questions such as "Is an image pictorial in nature?"; "Is an image spatial in its occurrence?"; and "Is image distinct from percept?" (Kosslyn, 1980). For the purposes of this study it is sufficient to adopt the loosely strung definition of image presented in Chapter 1. Image is taken to be an important, if vague and fuzzy, factor in people's behaviour and thinking, but this is not to say, along with Murdoch, that 'there is nothing "in" the mind except otiose imagery, daydreams, viscous stuff' (1992, p. 50).

2.2.3 The Nature and Power of Metaphor

This study adopts the view that metaphors can be very useful tools which enable us to understand better matters on the educational enquiry agenda. Schlechty and Joslin (1986, p. 147) put the point well:

> Metaphors are often the fundamental scaffolding surrounding serious efforts at developing comprehensive descriptions, explanations and predictions. In a word, well chosen metaphors are useful beginning points for educational theorizing.

Metaphor derives from the Greek *metaphora*, which comes in turn from *meta*, meaning over, and *pherein* meaning to carry. In other words, following Hawkes (1972, p.1), metaphor

> . . . refers to a particular set of linguistic processes whereby aspects of one object are 'carried over' or transferred to another object, so that the second object is spoken of as if it were the first.

Metaphors are common place. Indeed Wegener, who wrote in the German during the latter years of the nineteenth century, claimed that literal language is a very repository of "faded metaphors" (cited by Langer, 1957, p. 140). In a similar vein it has been argued that English can rightly be described as 'the language of buried metaphors' (Renton, 1990, p. 5). This claim is well founded when it is recognised that Renton extracted his stock of metaphors from literature (e.g., 'to want one's pound of flesh' from Shakespeare's *Merchant of Venice*); from politics (e.g., Churchill's 'the iron curtain' and 'a sheep in sheep's clothing'); from religious sources (e.g., 'to hold out an olive branch' and 'the writing is on the wall' from the *Old Testament* of the *Bible*); from heraldry (e.g., 'blot on the escutcheon'); and from foreign languages (e.g., *'bete noire'*, *'creme de la creme'* and *'carte blanche'* from the French).

Another feature of metaphors is that they can be found in a variety of grammatical forms. Renton (1990, p. 61) indicated that these forms include nouns by themselves (e.g., 'a figurehead'); nouns qualified by adjectives (e.g., 'a round robin'); adjectives alone (e.g., 'apocryphal'); adjectival phrases (e.g., 'off the cuff'); nouns qualified by adjectival phrases (e.g., 'a knight in shining armour'); adverbial phrases (e.g., 'with a heavy heart'); mini sentences (e.g., 'there is no such animal'); exclamations (e.g., 'tell it to the marines!'); and questions (e.g., 'were your ears burning?').

The Classical view (from Aristotle, through Cicero, to Quintilian) was, generally, that, while language and "reality" were considered to be coincidental (Ross, 1981), metaphor was to be considered as being detachable from language and, accordingly, was seen primarily as an ornament upon language. Metaphor, therefore, was seen as being dispensable (Hawkes, 1972; Kittay, 1987; Ortony, 1979). An upshot of this is that if this view holds, the minds of people can be seen simply as "passive receptacles of perceptions" (Kittay, 1987, p. 4) delivered to them through a language conduit. This sort of claim, as will be revealed in this review, receives little support currently.

Despite this generalisation concerning the Classical perception of metaphor's import, Aristotle, for example, according to Kittay (1987), Ricoeur (1978) and Lakoff and Johnson (1980, p. 190) did hint, at least, at metaphor's capacity to act as a cognitive or

conceptual tool. Kittay (1987, p. 2) illustrated this claim by offering the following quote from Aristotle's *Poetics*:: '. . . [metaphor] is . . . a sign of genius since a good metaphor implies an intuitive perception of similarity of dissimilars. Through resemblance, metaphor makes things clearer'. More important though, Kittay (1987, p. 2) drew on Aristotle's phrase 'sowing around a god-created flame' to demonstrate that the act of the sun 'casting forth its flames' was nameless because it was not conceived as an act until the perception was so formulated by the metaphor. The metaphor was itself 'instrumental in having identified a *something* to be named'. An outcome, then, is that through such a metaphor, Aristotle assisted his audience to perceive and understand something new and fresh about the world in which they live.

The argument of Giambattista Vico, an Italian whose *New Science* was published in 1725, developed this sort of view somewhat. Hawkes (1972, p. 39) paraphrased Vico thus:

> "Primitive" legends and myths were not lies, so much as poetic, metaphorical responses to the world on the part of wholly responsible people [and] the metaphors often fossilized in current speech were once the live embodiments of vivid perceptions of whose existence we are unaware in our anaesthetized "rational world".

Metaphor, then, if we follow this view, is more likely to be something other than a fanciful "embroidery" of facts. Indeed, it may be perceived to be 'a way of experiencing the facts . . . a way of thinking and living; an imaginative projection of the truth' (Hawkes, 1972, p. 39).

The Romantics (Shelley, Wordsworth, Coleridge and the like) held that metaphor has an "organic" relationship with language and stressed metaphor's function in the expression of people's imaginations (Hawkes, 1972, p. 13). Language, certainly, was no longer regarded primarily as some sort of conduit. Kittay (1987, p. 6) made a noteworthy claim of metaphor in this regard. Metaphor, it was held,

> . . . does not record pre-existing similarities in things; rather, it is a linguistic means by which we bring together and fuse into a unity diverse thoughts and thereby re-form our perceptions of the world.

The Romantic tradition (extended of course) seems to have pervaded thinking concerning metaphor throughout most of the twentieth century. Richards (1938, p. 48), for example, held that thought, rather than merely expressing itself through metaphor, *is* metaphoric in its nature. Metaphors, that is, are seen to have cognitive significance, with their power emanating from the simultaneous, *interactive* operation of two concepts - the 'vehicle' and the 'tenor' (in the terms of Richards, 1938), 'focus'

and 'frame' (in the terms of Black, 1962), 'modifier' and 'principal subject' (in Beardsley's terms as cited by Ricoeur, 1978, p. 95).

Black (1962, p. 45), one of the most influential commentators on the topic at hand, conceded that the substitution and comparison views of metaphor (the views which hold that metaphors simply substitute for more literal terms or which draw simple comparisons between two unlike things) are legitimate when considering "trivial cases", but he held that the interaction view was of far greater philosophical power. The interaction view, according to Black (1962, pp. 37-41) involves a "system of associated commonplaces" (including "half-truths or downright mistakes", which reflect what "the man in the street" thinks about the nature of the subsidiary subject system), which can act as a filter to organise our view of the principal subject under consideration within the metaphor, suppressing some details and emphasising others, and in so doing *creates* similarities among things (as opposed to merely recording pre-existing similarities).

Black was concerned to investigate "cognitive aspects" of certain metaphors, whether in science, philosophy, theology, or ordinary life (1979a), and whether in communication with others or in private thought (1979b). Such a cognitive view is interwoven closely with an "interaction" perspective, the crux of which was presented as follows:

> In the context of a particular metaphorical statement, the two subjects "interact" in the following ways: (a) the presence of the primary subject incites the hearer to select some of the secondary subject's properties; and (b) invites him to construct a parallel implication-complex that can fit the primary subject; and (c) reciprocally induces parallel changes in the secondary subject (Black, 1979a, p. 29).

Some metaphors, according to Black (1979a, p. 41),

> can properly be held to convey, in indispensable fashion, insight into the systems to which they refer. In this way, they can, and sometimes do, generate insight about "how things are" in reality [in much the same ways as charts and maps, graphs and pictorial diagrams, photographs and "realistic" paintings, and above all models, are familiar devices for *showing* "how things are", devices that need not be perceived as mere substitutes for bundles of statement of fact].

Richards profferred a "tensive" view of metaphor which stressed the conceptual discordance of the elements of the metaphor and held that 'the greater the distance between tenor and vehicle and the more unexpected their combination, the more striking

and surprising is the metaphor' (cited by Ricoeur, 1978, p. 119). There are three aspects of such tension according to Ricoeur (1978, pp. 298-299):

1) the tension between the terms of the statement, as, in the example 'My child's school is a prison', between "school" and "prison";
2) the tension between the literal interpretation and metaphorical interpretation, as in the example above, between the two meanings of "prison"; and
3) the tension in the reference between *is* and *is not*, as in the school is a prison, but it is not a prison

The work of Lakoff and Johnson (1980) epitomises much of the current mainstream thinking concerning the nature and power of metaphor, and their opening paragraphs are quoted here in full:

> Metaphor is for most people a device of the poetic imagination and the rhetorical flourish - a matter of extraordinary rather than ordinary language. Moreover, metaphor is typically viewed as a characteristic of language alone, a matter of words rather than thought or action. For this reason, most people think they can get along perfectly well without metaphor. We have found, on the contrary, that metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.
>
> The concepts that govern our thought are not just matters of the intellect. They also govern our everyday functioning, down to the most mundane details. Our concepts structure what we perceive, how we get around in the world, and how we relate to other people. Our conceptual system thus plays a central role in defining our everyday realities. If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor (Lakoff and Johnson, 1980, pp. 3 - 4).

Lakoff and Johnson (1980) provided some excellent examples to illustrate how understanding and experiencing one kind of thing in terms of another is the essence of metaphor. One of those examples will suffice as illustration here. Take the example "Argument is war", which will be revealed by even a cursory examination of our language as being a commonly used metaphor. Lakoff and Johnson put their point this way:

> It is not that arguments are a subspecies of war. Arguments and war are different kinds of things - verbal discourse and armed conflict - and the actions performed are different kinds of actions. But ARGUMENT is partially structured, understood, performed, and talked about in terms of war. The concept is metaphorically structured, the activity is metaphorically structured, and,

> consequently, the language is metaphorically structured (1980, p. 5).

These contributors continued as follows:

> Moreover, this is the *ordinary* way of having an argument and talking about one. The normal way for us to talk about attacking a position is to use the words "attack a position". Our conventional ways of talking about arguments presuppose a metaphor we are hardly ever conscious of. The metaphor is not merely in the words we use - it is in our very concept of an argument (Lakoff and Johnson, 1980, p. 5).

Metaphorical concepts also have a systematic nature. This was demonstrated admirably by Lakoff and Johnson (1980, p. 7 ff). For example, in our culture, "time is money" which *entails* "time is a valuable resource", which *entails*, in turn, that "time is a valuable commodity", which *commands*, in its turn, that we ought not waste time. This systematic feature of metaphor will necessarily highlight some aspects of a concept but will necessarily hide other aspects of it too. Further, if we follow Black (1979a) in accepting that metaphors can facilitate different ways of perceiving the world, then it is likely that "generative" metaphors, using Schon's (1979) terminology, will result in "cognitive myopia" as a result of which some features will be understated at the expense of others which, possibly, may be of even greater importance to the matter at hand. Complex concepts, therefore, cannot be understood in any honest manner through a single metaphor, but rather only through a set of metaphors and their various entailments. This important point was demonstrated by Lakoff and Johnson (1980) through the examples such as "argument is a journey", "argument is a container", "argument is a building". They explained as follows:

> There is good reason why our conceptual systems have inconsistent metaphors for a single concept. The reason is that there is no one metaphor that will do. Each one gives a certain comprehension of one aspect of the concept and hides others. To operate only in terms of a consistent set of metaphors is to hide many aspects of reality. Successful functioning in our daily lives seems to require a constant shifting of metaphors. The use of many metaphors that are inconsistent with one another seems necessary for us if we are to comprehend the details of our daily existence (Lakoff and Johnson, 1980, p. 221).

Lakoff and Johnson (1980) also showed how an orientational metaphor can organise a whole system of concepts by giving a particular concept a spatial perspective - for example, in our cultural tradition happy is "up", as are health, life, more, good, virtue and rational, while sad, sickness, death, less, bad, depravity and emotional are "down".

Lakoff and Johnson (1980, p. 139) also showed how metaphors that are unconventional, imaginative and creative 'are capable of giving us a new understanding of our experience [and thus] can give new meaning to our pasts, to our daily activity, and to what we know and believe'. They went on to claim:

> Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors may be self-fulfilling prophesies (Lakoff and Johnson 1980, p. 156).

The power of metaphor in framing action can be seen clearly (thanks to Lakoff and Johnson,1980, p. 157) in President Carter's *choice* of metaphor in declaration of "the moral equivalent of war", together with various entailments which were generated, including, for instance, "a threat to national security", "setting targets", "marshalling forces", and "calling for sacrifices", when USA was faced with the energy crisis of the time.

Goodman's summary seems to be an appropriate way of rounding off this "cognitive" view of metaphor which has emerged:

> Far from being a mere matter of ornament, [metaphor] participates fully in the progress of knowledge: in replacing some stale "natural" kinds with novel and illuminating categories, in contriving facts, in revising theory, and in bringing us new worlds (Goodman, 1979, p. 175).

Despite any appeal this "cognitive" view of metaphor may have, Lakoff and Johnson (1980, pp. 190-191) showed how the rise of empirical science, with its distrust and fear of metaphor, brought scorn upon metaphor. They cited Hobbes as finding metaphor to be absurd and misleadingly emotional; they saw Locke as demonstrating contempt for "an enemy of truth"; and they regarded Samuel Parker as claiming that metaphor defiles reason by "unchaste and illegitimate Embraces". Such claims, though, are not confined to the distant past. Cohen (1979, p. 3), for example, demonstrated how these sorts of claims, including those, in Black's (1962) terminology, which attached mere substitution or comparison purposes to metaphor, persisted in some quarters into the twentieth century by denying to metaphor '1) any capacity to contain or transmit knowledge; 2) any direct connection with facts; or 3) any genuine meaning'. Davidson (1979, p. 30) confirmed his membership of this school of thought when he took the view that 'metaphors mean what the words, in their most literal interpretation, mean, and nothing more'.

It would be wrong, therefore, to conclude that there are no unresolved issues concerning metaphor. An argument about the minimum size of the metaphorical unit persists; some commentators will never agree whether or not there is metaphorical meaning as distinct from literal meaning; cases are made for and against the proposition that meaning in language can be context-free; and, indeed, jousting or sparing on the issue regarding the ability of metaphor to fulfil a cognitive as opposed to an emotive or embellishment function will not end at the bell which signals the end of any particular championship round..

2.2.4 Links between Metaphor and Image

Ricoeur (1979, p. 208) claimed that Black, Richards, and Beardsley (some of the contributors referenced above) regarded metaphor, essentially, as a verbal phenomenon. Metaphor is more than this, held Ricoeur (1979, p. 210), who pointed to 'the fusion of sense with a wave of evoked or aroused images' through language, including metaphor.

It was Aristotle who held that the vividness of good metaphors consisted of their 'ability to "set before the eyes" the sense that they display' (Ricoeur, 1979, p. 142). Aristotle, according to Ricoeur (1978, p. 34), indicated that, through metaphor, one can make hearers *see* things. Ricoeur (1979, p. 142) took this "seeing as" attribute to be the *picturing* or iconic or imaging function of metaphor. Langer (1957, p. 141), in like attitude, saw that 'Metaphor is our most striking evidence of *abstractive seeing*'.

Ricoeur (1979) employed the notion of imagination or image (he seemed to use the two terms interchangeably) to explain how the two different semantic fields of a given metaphor might be reconciled in one's mind. If image is of the same genre as imagination, then, following Ricoeur's line of reasoning, image would be regarded as the *seeing* or the *insight* which is productive in enabling *predicative assimilation*, in the sense of effecting a narrowing in logical distance between the two terms, through *making similar* but at the same time *preserving remoteness* in the terms in the metaphor. Image, then, according to Ricoeur (1979, p. 146), would enable new understanding to be produced *in spite of and through the differences* in the two components of the metaphor. Thus, image is seen to have a quasi-verbal aspect to it as it becomes an emerging meaning, which is (according to Ricoeur, 1979, p. 147) within the Kantian tradition of productive imagination and schematism.

A pictorial dimension of image has also been introduced into the semantics of metaphor (Ricoeur (1979, p. 147). In this initiative Ricoeur followed Richards' notions of

"tenor" and "vehicle" which 'designate the conceptual import and its pictorial envelope' (1979, p. 147). In addition Ricoeur (1979, p. 148) aligned himself with Kant's belief that 'one of the functions of the schema is to provide images for a concept'. Ricoeur (1979, p. 148) continued as follows:

> By displaying a flow of images, discourse initiates changes of logical distance, generates rapprochement. Imaging or imagining, thus, is the concrete milieu in which and through which we see similarities.

Ricoeur (1979, p. 149 ff) also introduced the notion of "suspension" or "epoche" or the "moment of negativity" brought by the image in the process of making metaphor. What Ricoeur meant by this was that image is said to 'contribute concretely to the suspension of ordinary reference and to the projection of new possibilities for redescribing the world' (p. 152).

Images need not, according to Ricoeur, be wild and fanciful or overly vague, but can be of the variety Hester called "bound" images, that is, 'concrete representations aroused by the verbal element and controlled by it' (Ricoeur, 1979, p. 148).

Moving on from Ricoeur's contributions, it is informative to discover the underlying postulate upon which Morgan (1986) based his work. Morgan stated it thus:

> . . . our theories and explanations of organizational life [that is, our images] are based on metaphors that lead us to see and understand organizations in distinct yet partial ways. . . . [The] use of metaphor implies a way of thinking and a way of seeing that pervade how we understand our world generally (1986, p. 12).

Morgan's book invites readers to see and think about organisations (as a precursor to reframing thinking about their own organisations) in terms of a variety of metaphors - as *machines*, as *organisms*, as *brains*, as *cultures*, as *political systems*, as *psychic prisons*, as *flux and transformation*, and as *instruments of domination*. Morgan did not attempt to identify the extent or intensity of each of these metaphors in organisations, nor did he claim that this range of metaphors is exhaustive of the images that may be held concerning them.

In the same sort of tradition, Tobin (1990) reported a number of case studies of the images and metaphors which appear to have influenced the actions of several classroom teachers. These images and metaphors were identified from verbal accounts gleaned from the teachers' responses to interview questions, and indicated that teachers may adopt images and metaphors from, for example, roles outside teaching (as with "Gary"

who brought his karate persona into the science classroom in the form of teacher as *intimidator*), or, indeed, as a result of an impression made by a teacher they remember from the past.

Schon (1979, p. 254) was another who treated metaphor as being 'central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set problems we later try to solve'. This sense of metaphor, claimed Schon (1979, p. 254), 'refers both to a certain kind of product - a perspective or frame, a way of looking at things - and to a certain kind of process - a process by which new perspectives on the world come into existence'.

It is interesting to read Schon's (1979) illustration of how "generative metaphors" employed (usually subconsciously or tacitly) in social-policy planning, such as seeing slums as *blight* or slums as *natural communities*, carry with them, automatically, "solutions" which are congruent with the metaphor. Schon (1979, p. 268) said that 'In this SEEING-AS we construct what is wrong and what needs fixing'. He went further to claim that attention to generative metaphor 'becomes a tool for critical reflection on our construction of the problems of social policy' (p. 268).

Sontag (1989), in her book 'Aids and its Metaphors', similarly, presented a powerful perspective on language as *a virus*. She indicated that, for instance, military, racial, invasion, pollution and plague metaphors for diseases such as AIDS, or leprosy, or syphilis, or cancer, for example, can kill people (through creating such fear and shame that sufferers refuse to seek proper medical care). Sontag went on to describe how metaphors can mobilise nations or groups against others. She argued powerfully that this is occurring with the AIDS epidemic which is said to emanate from "the dark continent" and is perceived to be a punishment visited upon homosexuals and other deviants. What's more, argued Sontag, metaphors can actually alter cultural mores concerning, for example, sexual promiscuity. The "final solution", concerning problems and their resolution, it is clear, frequently springs from a metaphor. However, as pointed out by Reddy (1979), the selected metaphor may be misleading and wrong.

A number of contributors to discussions on the growth of science also add substance to to the sorts of claims touched on above. Miller (1984, p. 155), for example, described how 'metaphor becomes physical reality' through his illustration of the work of Heisenberg in the area of quantum mechanics, while Boyd (1979) took the position (supported by Kuhn, 1979) that sometimes the statement of new scientific theories

actually requires metaphors, called "theory-constitutive" metaphors, as conduits. Boyd (1979), indeed, argued that some metaphors actually, no less, constitute scientific theories. Theobald indicated similar sentiments earlier when he proposed:

> Men are always trying to find similarities between new and familiar situations, to find out the extent to which the former can be explained in terms of accepted concepts. This habit of mind is the *raison d'etre* of metaphor and analogy and their widespread use in our ordinary conversation (1968, pp. 55-56).

Significantly, Theobald (1968, p. 56) held that this 'habit of mind' is 'more than a matter of psychological comfort or convenience', for it 'plays a vital part in scientific thinking' in that it enables scientists to launch conceptual innovations and conceive new systems. It is doubtful in this researcher's mind that Theobald would deny an extension of these sorts of claims to the enterprise of education.

Morgan (1983a, p. 13), when talking about the impact of metaphor on the construction of theory, pointed to the way 'different images of a subject guide and prefigure, and hence shape, *what is seen*' (my emphasis). Morgan (1983b, p. 21, Fig. 2.1) elaborated as follows:

> Scientific knowledge is shaped by the way researchers attempt to concretize the ground assumptions that underwrite their work. Images of a social phenomenon, usually expressed in terms of a favored metaphor, provide a means of structuring scientific inquiry, guiding attention in distinctive ways. The image favours a particular epistemological stance in suggesting that certain kinds of insight, understanding, and explanation may be more appropriate than are others. Different ground assumptions and the images through which they are grasped and developed thus give rise to different grounds for knowledge about the social world.

To conclude this sub-section it is worthwhile contemplating the strong position taken by MacRae. He looked beyond any mere linkage between metaphor and image alone and proposed that 'All reflection, thought and criticism begins in comparison, analogy and metaphor' (1975, p. 59). He went on to claim:

> Metaphor is the root of reason, science and art. It is the root of feeling as understood beyond the immediate sensations of the self and of all expression of feeling. . . . In human feeling, reason, imagination, play, experiment, judgement and decision, metaphor is embodied (MacRae, 1975, p. 59).

2.2.5 Image and Language

Language is a critical component of metaphor and image and is important also as a means by which metaphorical structures and images are communicated and developed in people. This section pays brief attention to this communication and development aspect.

A key point seems to be that a person's knowledge structure, his or her image of the world, can be inferred from the messages that he or she transmits (Boulding, 1956, p. 17). Boulding (1956, p. 14) also held that 'part of our image of the world is the belief that this image is shared by other people like ourselves who are also part of our image of the world'. If a collection of people possess value systems which are somewhat the same (as is likely among some teachers of a school for example), it is not difficult to imagine that common images (which remain, nevertheless, the property of individuals rather than of a group or organisation) will be built from similar image-building messages transmitted through conversation and linguistic intercourse within what Boulding called the "universe of discourse".

In a similar manner, Sergiovanni (1985, p. 7) indicated that our mindscapes, referred to below, are expressed through language, and that language, in turn, reinforces them.

It was Whorf (cited by Black, 1962) who maintained that the "real world" is, to a large extent, unconsciously built by people upon the language habits of one's group. Put another way, it is suggested that, following Ricoeur (1978) who drew upon the earlier work of Hester, there is an intersection between '*saying*' and '*seeing as* . . .'(p. 207). Ricoeur (1978, p. 212) indicated that 'the "seeing as" is the intuitive relationship that makes the sense and image hold together' and 'the "seeing as" . . . is half thought and half experience'. Thus, said Ricoeur (1978, p. 213), when the "seeing as" is activated there is a joining of verbal meaning, on the one hand, with "imagistic fullness" on the other.

These claims are supported by the possibility that we think and act more or less automatically where a host of daily activities are concerned and that our conceptual system is not something we are normally aware of (Lakoff and Johnson, 1980, p. 3). Bredeson's interpretation of Embler's contribution adds substance to the claims as well: 'More often than not, our thoughts do not select the words we use. Rather, behaviour often becomes a function of the words we use and, indeed, may even determine the thoughts we have' (Bredeson, 1988, p. 298).

It seems clear that if our communication is based on essentially the same conceptual system as are our thoughts and actions, as maintained by Lakoff and Johnson (1980) and Tobin (1990), language (including metaphor) would seem to be a promising way of probing the nature of people's submerged cognitive systems. One language genre which could be of significance in the development of images in the minds of people in organisations is storytelling - telling stories which are isolated or in-series, terse or extended, concerning new events or concerning culturally sacred story lines (Boje, 1991). Storytelling, it will be seen in the next section, is an important element of the repertoires of the cultural "priests" who inhabit organisations.

2.2.6 World Hypotheses, Paradigms, Mindscapes and Organisational Cultures

It is worth spending a little time contemplating how people might acquire particular images, whether they be metaphorical in nature or explainable through metaphor or not. The literature offers assistance in this respect and several orientations are addressed in turn below.

2.2.6.1 World Hypotheses

The approach taken in this study owes much to the intellectual tradition pioneered by the two philosophers Stephen Pepper and Thomas Kuhn. Pepper's contribution is central to this sub-section, while Kuhn's work is central to the next.

Pepper (1942) attempted to identify a set of "world hypotheses" which would be applicable generally and unrestricted by specific fields of knowledge. He theorised that the origin of world hypotheses in their raw, undeveloped and unrefined form, lay in root metaphors, such as, perhaps, *all things are water* or *all things are love.*

In his book, Pepper explained the development and nature of six world hypotheses, namely:

1) animism (the root metaphor being *human kind*);
2) mysticism (the root metaphor being *love*);
3) formalism (emanating from the root metaphor *similarity*);
4) mechanism (growing out of *machine* as the root metaphor);
5) contextualism (the root metaphor being *the historic event, the act in its context, the incidents of life*); and
6) organicism (the two root metaphors being *organism* and *integration*).

Pepper pointed out several inadequacies in the first two hypotheses and concluded eventually that there are only four *standard* hypotheses (the last four listed above) 'because there have appeared so far only four root metaphors capable of generating theories' (1942, p. 340).

In order to illustrate Pepper's position, his citation (1942, pp. 121-122) of the summary of animism provided in E.B. Taylor's *Primitive Culture*, is offered below:

> To the lower tribes of man [writes Taylor], sun and stars, trees and rivers, winds and clouds, become personal animate creatures, leading lives conformed to human or animal analogies, and performing their special functions in the universe with the aid of limbs like beasts, or of artificial instruments like men; or what men's eyes behold is but the instrument to be used or the material to be shaped, while behind it there stands some prodigious but half human creature, who grasps it with his hands or blows it with his breath. [At] its full development, [this view] includes the belief in souls and in a future state, in contolling deities and subordinate spirits. [It culminates in the notion of] the personal soul or spirit.
>
> [This personal soul or spirit] is a thin unsubstantial human image, in its nature a sort of vapour, film or shadow; the cause of life and thought in the individual it animates; independently possessing the personal consciousness and volition of its corporeal owner, past or present; capable of leaving the body far behind, to flash swiftly from place to place; mostly impalpable, invisible, yet also manifesting physical power, and especially appearing to men waking or asleep as a phantasm separate from the body of which it bears the likeness; continuing to exist and appear to men after the death of that body; able to enter into, possess, and act in the bodies of other men, on animals, and even things.

Given this animism world hypothesis, what then, asked Pepper, would thunder be? According to Pepper (1942, p. 122):

> It is the angry voice of a great spirit. It is the stamping of the hoofs of the steeds of a great spirit. It is a great spirit clanging his arms. It is the roar of the lightning bolts hurled by a great spirit. It may even be a spirit itself roaring in pursuit of some other spirit to devour.

In the context of the current research, it is suggested that teachers' theories, images, mental frameworks or whatever one likes to call them (which inform their actions and thoughts) emanate in part at least from one or more deeply embedded root metaphors.

2.2.6.2 Paradigms and Mindscapes

A significant, though not uncontested, belief over many years has been that members of scientific communities share a common "paradigm" (other terms which appear in the literature with similar meanings include "disciplinary matrix", "*Weltanschauung*", "ideal of natural order", "high-level background theory", "philosophic background", set of "absolute presuppositions", and "framework of thought").

Kuhn's view, for example, was that a paradigm is what the members of a scientific community, and they alone, share, and it is their possession of such a paradigm which makes for a scientific community rather than a loose group of 'otherwise disparate men' (Kuhn, 1977, p. 460).

Such a paradigm or set of paradigms, it was claimed, provide the community with a set of preferred analogies and metaphors and, further, 'account for the relatively unproblematic character of professional communication and for the relative unanimity of professional judgement' (Kuhn, 1977, p. 462).

A paradigm, in effect, therefore was said to furnish community members with a commonly held 'constellation of beliefs, values, and techniques' (Kisiel, 1982, p. 97), and with, as Miller (1984, p. 120) put it, 'perceptual and linguistic anchors to the world'.

It has been reported (Kisiel, 1982, p. 100) that Kuhn borrowed the term "paradigm" from the study of language teaching, so it ought not be surprising that paradigms or their kin are found also in the literature of education. Sergiovanni's contributions touched on below illustrate such a tendency.

Sergiovanni talked about "mindscapes" within the context of supervision (1985) and leadership (1992) in schools, although it is doubtful that he would have difficulty in accepting an extension of the concept to aspects beyond these. Mindscapes were viewed as

> mental frames through which . . . reality and our place in this reality are envisioned. . . . [and which] provide us with intellectual and psychological images of the real world and the boundaries and parameters of rationality which help us make sense of this world (Sergiovanni, 1985, p. 6).

These mindscapes were seen as 'intellectual security blankets' and also as 'road maps through an uncertain world'. As the latter, Sergiovanni claimed, mindscapes provide the 'rules, assumptions, images, and practice exemplars' that define tasks and processes, and program our thinking and belief structures in such a way that problem-solvers, for example, become *locked into* a particular way of thinking and *forced into* a particular course of action. This thinking and action is then *justified* in terms of the original mindscape (Sergiovanni, 1985, pp. 7-8).

A critical claim for our purposes here is the view that:

> So complete is the programming of a mindscape that its assumptions and practices are automatically accepted and articulated. Mindscapes are not thought about very much, for they are assumed to be true (Sergiovanni, 1985, p. 6).

This latter point makes a neat bridge to a somewhat different but related concept.

2.2.6.3 Organisational Cultures

Duignan (1987) spoke of what he called "frames", which appear to be thought of as being of similar ilk to the paradigms or mindscapes referred to above. It was Duignan's view (1987, p. 213) that a 'cultural or symbolic frame is more applicable in organisations, such as schools, with unclear goals and uncertain technologies'. During the past decade or so, students (if not always practitioners) of educational administration (among students of administration more generally) have tended to embrace the notion of organisational culture, and a considerable body of related literature has emerged (see for example, Beare, Caldwell and Millikan, 1989; Deal and Kennedy, 1982; Duignan, 1987; Frost et al., 1985; Kilmann et al., 1985; Millikan, 1987; Ouchi, 1981; Owens and Steinhoff, 1989; Peters and Waterman, 1982; Schein, 1985; Smircich, 1983b). It is sufficient, though, to touch on this topic briefly here.

Sergiovanni (1991) maintained that, while climate is 'a form of organizational energy' (p. 215) concerned with 'the process and style of a school's organizational life rather than its content or substance', and is manifested in the attitudes and behaviours of teachers and others, culture 'is a reflection of the shared values, beliefs and commitments of school members *across an array of dimensions*' (p. 218).

If there is a set of such shared values, beliefs and commitments it is hardly surprising that what will emerge over time is a group's 'agreement, implicit or explicit, on how to approach decisions and problems: "The way things are done around here"' (Kilmann et al., 1985, p. 5).

Organisational culture, it is claimed frequently, manifests itself at various interacting levels. For example, Millikan (1987) identified and described a host of 'conceptualised/verbalised expressions', 'visual/material expressions and symbolism', and 'enacted/behavioural expressions' which manifest, develop, maintain and reinforce the character of a school's culture. Further, though, the "base determinants" of a school's culture, according to Millikan (1987, p. 40), are the 'individual values and experiences which each person brings to the school, and the ways in which people act and interact'. These values, together with subset elements labelled 'philosophy' and 'ideology', said Millikan (1987, p. 44), constitute the 'intangible foundations' of an organisation's culture.

A second "layered" view of organisational culture was provided by Schein (1985) who identified three levels: the most superficial level consisting of visible artefacts and creations; a deeper level composed of a set of espoused values; and the deepest level, the essence of the culture, comprised of a set of taken-for-granted, invisible, preconscious, internalised basic assumptions which form part of people's conceptual frameworks about, for example, the nature of human nature, the nature of human activity, and the nature of human relationships, and which guide behaviours and thoughts of the members of the organization.

It seems that people in organisations learn ways of dealing with their work-a-day activities and that over time much of what is learnt and taught becomes part of a common image which may, in part, become subconsciously held. It seems too that newcomers are taught "how to do things around here". Such teaching is carried out through, for example, telling stories, relating myths, conducting ceremonies, worshipping heroes, and occasionally through the 'unusually creative, charismatic, or prophetic individuals [who] represent, if we like, mutations in the image' (Boulding, 1956, p. 75).

2.2.7 Summary

This rather long and involved section of the literature review has indicated that people have certain images which guide their thoughts and behaviours. These images, it was pointed out, may be (in part) metaphorical in nature and may be described (in part) through metaphors. Furthermore, it was shown that the roles played by metaphor in all this are not those which are confined to embellishment or artful appendage, but rather are at least partially cognitive in nature. It was also demonstrated that the literature supports the notion that people acquire their images through being exposed to

organisational metaphors, paradigms, mindscapes and cultures through the exemplars, the stories, the ceremonies and the like which pervade life in organisations.

2.3 Transition from Primary to Secondary Schooling

The subject of this section, in comparison with the previous two at least, does not seem to have generated a large body of literature. Within the literature which is available, though, there appear to be at least two fairly common themes: concerns in transition and strategies to ease transition. These are touched on below.

2.3.1 Concerns in Transition

It is clear that many students find the transition between Primary and Secondary schooling to be anything but a smooth and trouble-free process (Jensen, 1983; Snow et al., 1986; McGee, 1989). Students often feel overwhelmed, disoriented, bewildered, confused and intimidated (Huey, 1985; Power and Cotterell, 1981), fearful of the prospect of fighting and bullying (Nicholson, 1990), and concerned about social pressures involving drugs, alcohol and risky or unacceptable behaviour (Gilchrist et al., 1988) as they leave the relative continuity and coherence of Primary school and enter the fragmented world of Secondary school (Evans, 1979; Woodhouse, 1983). These difficulties appear to be relatively short lived (Power and Cotterell, 1981) but this does not seem to lessen the concern which is normally expressed.

2.3.2 Strategies to Ease Transition

Newett (1992) identified numerous strategies which have been employed in Australia, Canada, Norway, Switzerland, United Kingdom and USA to make the transition between Primary and Secondary schools easier for students. Newett classified these strategies into four groups, namely:

1) strategies which involve networking between clusters of schools to ensure curriculum continuity across the Primary-Secondary divide;
2) programs which rely on a "buddy system" or peer-led orientation process aimed at helping new students find their way around the school, to meet and learn the names of teachers, to learn school rules and so on;
3) reforms which are more holistic in nature which involve the establishment of transition departments or sub-schools, the formation of Kindergarten-Grade 12 schools, or the postponement of transition by the establishment of intermediate or junior high schools; and
4) a miscellaneous group of strategies which attempt to develop in students better coping skills, provide specially trained teachers, or facilitate the exchange of information concerning students between feeder and receiver schools.

The "holistic" reforms alluded to above come closest to any approach which may be developed on the basis of the results of the research reported in this thesis. However, it is clear that these "holistic" reforms focus primarily on school structures, while the research which is outlined here points to the need for Principals and other school leaders to consider what might be regarded as more fundamental aspects of their school. To illustrate this latter claim, the reader is invited to contemplate the merit of restructuring a Secondary school which is seen, for example, to be a Prison or Military camp in order that it may be a better Prison or Military camp, to enable the new arrivals from a local Primary school which is seen as a Creche or a Family or whatever, to cope better with the transition.

This chapter has reviewed the literature which is relevant to the study's attention to classroom environment, organisational climate and culture, image and metaphor, and students' transition from one level of school to the next. Several other aspects such as cooperation within a school are shown by the study to be important but the relevant literature is touched upon later in the appropriate context.

The review supports the conceptual framework sketched in Figure 1 on page 7. It does this in two main ways. Firstly, it points to the importance to schooling of the variables presented in that framework. Secondly it demonstrates that the relationships which lie outside the study proper (as indicated by the four light lines in the figure) have been probed quite extensively and supports the belief that these links exist and are important. The three links depicted in Figure 1 by heavy lines, and which are the focus of the three research questions here, however, are not discussed to any real extent in the literature. In what follows, this deficiency is rectified, however modestly.

Chapter 3

Methodology

This chapter is devoted to three aspects of the study. Firstly, it indicates the manner in which the samples were selected and points to a number of characteristics which describe the nature of the samples from the point of view of the schools represented, the teachers and the students. Secondly, it describes the procedures employed to administer and score the instruments and thus obtain data from the samples and to analyse the data. Finally, it describes the questionnaire instruments and explains how they were developed and validated.

3.1 Selection and Description of the Sample

3.1.1 Background

The aim in this aspect of the project was to obtain a relatively large sample of teachers and students who were "representative" of the Tasmanian education enterprise. The maintenance of confidentiality of teachers and students and avoidance of pressure for them to participate were held to be very important guides to action.

A form letter was sent to the Principals of 153 schools in the first instance. This list included all state Secondary schools (excluding senior colleges) in the North, Northwest and West of Tasmania. It also included all state Primary schools in these regions which were thought to be large enough to have classes of Grade 5 and 6 students either separately or in composite mode. The list also included all District High schools throughout the State. The non-state schools in the North of Tasmania and the larger non-state schools in the other regions were also included. Those schools (generally known as "Special Schools") which cater exclusively for physically and/or intellectually handicapped students were not approached. The total of 153 schools represent approximately 60 percent of all the State's schools thought to have classes in the Grades 5 - 6 and/or Grades 7 - 8 ranges (outside the schools in the "special" category).

The Principals were invited to bring the research project to the notice of their Grades 5 - 8 teachers and to indicate to the researcher the numbers (not the names) of teachers who showed an interest in taking part. In addition, Principals were invited to consider engaging their whole school in the exercise as an aspect of their school improvement and professional development initiatives. Positive responses (indicating either some staff support or an interest in a whole-school involvement) were received from 53 Principals or their nominees. As a consequence of this preliminary step there was a

potential involvement of approximately 510 teachers and 235 classes of Grade 5 - 8 students.

Individual packages of materials were sent to the 53 Principals for distribution to the teachers who had indicated a willingness to participate in the project. Usable responses were received from a total of 288 teachers and 177 classes of students in 49 schools. Of these responses there was commonality in 162 instances in the sense that 162 teachers returned usable SLEQ forms and ISM forms and furnished class sets of completed MCE forms. The larger sets of data were retained for validation and descriptive purposes but the three research questions were answered by reference to the smaller sample of 162 teachers and classes. It is this smaller sample which is described in some detail below.

3.1.2 The Schools

The 162 teachers and classes come from a total of 48 schools. Twenty four (50%) of these schools are state Primary (Grades K - 6) schools, seven (14.6%) are state Secondary schools (Grades 7 - 10), six (12.5%) are state District High schools (Grades K - 10), while 11 (22.9%) are non-state schools ranging from relatively small co-educational primary schools to large single-sex schools (five which enrol girls only and one which enrols boys only) which have students K - 12 on separate junior and senior campuses.

Thirteen (27%) of the 48 schools are clearly rural in their setting while at least eight (17%) are located in what are generally regarded as clearly low socio-economic suburbs of cities.

3.1.3 The Teachers

Of the 162 teachers, 55 (34%) are employed in state Primary schools, 41 (25.3%) in state Secondary schools, 24 (14.8%) in District Highs, and 42 (25.9%) in non-state schools.

Fifty (31%) of the teachers are male and 112 (69%) are female.

The numbers (and proportions) of teachers in the sample in terms of "status" is: Principal 5 (3.1%), Deputy Principal 4 (2.5%), Advanced Skills Teacher III 8 (4.9%), Advanced Skills Teacher II 9 (5.6%), Advanced Skills Teacher I 56 (34.6%) and Assistant Teacher 80 (49.4%).

The professional experience of the sample of teachers is: 10 (6.2%) with less than 1 year, 19 (11.7%) between 1 and 3 years, 39 (24.1%) between 4 and 10 years, 64 (39.5%) between 11 and 20 years, and 30 (18.5%) with more than 20 years in the teaching profession.

The length of tenure of the teachers at their current school is: 27 (16.7%) less than 1 year, 57 (35.2%) between 1 and 3 years, 49 (30.2%) between 4 and 10 years, 27 (16.7%) between 11 and 20 years, and 2 (1.2%) more than 20 years.

Of the 162 teachers, 125 (77%) indicated that they were prepared to be interviewed individually and/or in a group or otherwise engage in some form of follow-up activity if necessary and provided their name for this purpose.

3.1.4 The Students

A total of 1,923 students from the 162 classes furnished usable responses to the Actual form of *My Class Environment* (MCE). Of these, 766 are male and 1,144 are female, while 13 respondents did not indicate their gender. The gender imbalance is explained largely by the fact that of the single sex classes in the sample, 26 are in girls-only schools while only two are in boys-only schools. A 2-tailed t-test for independent samples, which tests the hypothesis that differences between means is zero, was applied to the data from the administration of MCE to girls, on the one hand, and to boys, on the other. The result was a low t-value of 0.48, with $P = 0.63$. This indicates that the mean scores for the six scales of MCE (Actual) for boys and girls are not significantly different, and thus it can be regarded that the imbalance of boys and girls in the sample does not systematically bias the results in one direction or another.

The 1,089 (56.7%) Primary (Grades 5 - 6) and 834 (43.3%) Secondary (Grades 7 - 8) student respondents are distributed among the Grade levels as follows: 520 (27.0%) in Grade 5, 569 (29.6%) in Grade 6, 488 (25.4%) in Grade 7 and 346 (18.0%) in Grade 8. In the Primary (Grades 5 - 6) area, 603 (55.4%) of the students are in single Grade classes while 486 (44.6%) of them are in composite groups (normally Grades 5 and 6 together, however, several groups of Grade 5 and 6 students are in composite classes which include some Grade 4 and Grade 3 students also).

3.2 Procedures for Collecting, Recording and Analysing the Data

The researcher was very concerned to ensure that the anonymity and confidentiality of teachers were protected and that they did not feel pressured to be involved in the project. Principals were provided with information which outlined the nature of the intended research and the type of involvement that was being sought of teachers. Once a Principal indicated the number of teachers who had shown to him or her a willingness to participate in all aspects of the project, the researcher sent by mail or delivered by hand to him or her the required number of individual packages of materials. Each of these packages included single copies of SLEQ Actual and Preferred, single copies of ISM Actual and Ideal, a data sheet to be completed by the teacher (these first five forms being securely stapled together), class sets of MCE Actual and Preferred, an envelope (for direct return of the completed forms to the researcher) showing the name and address of the researcher and a reply paid facility number, and a set of instructions. Principals were asked to distribute the packages to the teachers concerned.

Where teachers did not want to involve their students, or if they taught outside the Grades 5 - 8 range but were prepared to be involved to the extent of supplying information concerned with a whole-school improvement/professional development thrust, Principals were supplied with sufficient sets of SLEQ Actual and Preferred, ISM Actual and Ideal and teacher data sheets (all stapled firmly together) and sufficient envelopes showing the researcher's name and address and a reply paid facility number.

Instructions for completing the various questionnaires themselves are straight forward and are shown in the Appendices along with the questionnaires. Teachers in the Grades 5 - 6 range were asked to have half the class complete the Actual form of MCE and the other half complete the Preferred form. Similarly, those who teach in the Grades 7 - 8 range were asked to select one class ('Neither your favourite class nor your least liked one would be ideal' being the guidance given) and have half the class complete the Actual form and the other half complete the Preferred form. Regardless of whether they taught in the Grades 5 - 6 or 7 - 8 ranges, teachers were asked to allocate the instruments to students on the basis of their listing in an attendance register/mark book or the like so that the first, third, fifth etc. girl and boy completed the Actual form, and the second, fourth, sixth etc. girl and boy completed the Preferred form. Actual and Preferred forms of MCE were printed on different coloured paper to facilitate this task. Teachers were also asked to ensure that each student provided the information requested at the top of the MCE form and to assist them in this task if necessary.

Further, teachers were reminded that there are no right or wrong answers to MCE, so if a student was having trouble with the language of a particular item to feel free to assist him or her to decide upon a response with which he or she felt satisfied.

The information which can be gained from MCE is the sort which most teachers obtain in an informal manner as a consequence of their normal interactions with students. Consequently, it was left to Principals to decide whether or not parents should be asked to consent to their children taking part in the research. Where a Principal indicated to the researcher that he or she would probably need to seek parental approval, sufficient form letters appropriate for the purpose were supplied. Few Principals indicated that parental approval would be necessary.

Teachers were advised that MCE returns would be scored as early as possible and that, if they supplied their name on the data sheet, profiles of the particular classroom psychosocial environment would be sent directly to them. Many teachers took advantage of this offer.

All MCE and ISM returns and some of the SLEQ returns were hand scored by the researcher, but an assistant was employed to score the remainder of the SLEQ returns. Once the returns were scored, the data (except for names of teachers and their schools) were entered in their entirety on personal computer spreadsheet files (Macintosh LC using StatView IV) by the researcher with some assistance from a professional keyboard operator. The scored and entered returns were then stored in a locked steel cupboard. Spot checks of the work of the assistants were conducted regularly by the researcher.

The development and validation processes described below frequently went beyond the matched samples of 162 teachers and 162 classes. As an adjunct to the study proper, school Principals were invited to involve their school in a "whole-school audit" of the features which could be indicated by the three questionnaires. A number of Principals availed themselves of this opportunity, and thus a total of 288 teachers from 49 schools responded to one or more of the relevant questionnaires, as did students from a total of 177 classes. The additional data so generated were not to be wasted, and the validation process therefore was carried out twice - for the larger samples and again for the smaller sub-samples.

One of the key assumptions regarding the nature of the population from which a sample is drawn concerns its distribution. At least three tests of data can point to the extent to

which a population is normally distributed, namely the size of the standard deviations and the degree of skewness and of kurtosis. If the standard deviations are not much larger than 2 in magnitude and skewness and kurtosis values are not too far from zero (StatView Manual, 1992) one may conclude that the distribution is normal.

The descriptive data reported in Chapters 4 and 5 indicate that the standard deviation benchmark is satisfied well when *My Class Environment* and *Images of School through Metaphor* data are considered, but is violated somewhat when the data from *School Level Environment Questionnaire* are the focus. Skewness and kurtosis values were calculated for the 40 variables which are embodied in the three questionnaires. These values were close to zero in every case with MCE scales (the largest departure from zero being -.94). ISM items, similarly, satisfied the criterion with ease in most cases (with only 14 of the 52 values calculated being larger than 1.00). The item which demonstrated the largest skewness and kurtosis values was school as Ghetto with values of 1.80 and 3.17. In the case of SLEQ items, only five of the 16 skewness and kurtosis values were in excess of 1.00, with the largest values being -1.23 and 2.08 for Affiliation. On the basis of the results it was concluded that the use of parametric statistics was highly appropriate in most instances. A choice then had to be made whether to switch back and forth between parametric and nonparametric tests in the cases where there may be some doubt about the underlying assumptions. Cohen and Cohen (1975, p. 48) pointed out that no assumptions concerning the characteristics of the population from which a sample is drawn need be made when using correlation, regression and similar coefficients in order to describe the data generated in a study. Further, Cohen and Cohen (1975, pp. 48-49) claimed that correlation and prediction tests (of the r and B type which address statistical significance matters relevant to this study at least) are quite robust and liberal and can, therefore, withstand a degree of violation of assumptions. At times a parallel nonparametric test was applied in order to check the results generated by a parametric test. For example, the test-retest of ISM Ideal data reported in Table 3.3.3.3.1 were also analysed using the Wilcoxon signed rank test which is a nonparametric equivalent of the t-test (StatView Manual, 1992). No marked differences between the results were noted. On balance, then, it was decided to conduct the study in the belief that no great harm would be done by dispensing with any shift between parametric and nonparametric tests.

Researchers such as Fraser and his colleagues have applied a range of validation techniques to questionnaires of the type employed in this study. Typically, these sorts of techniques are adopted here. One of the strengths of this approach is that valid comparisons can be made between some of the results generated here and those which

have emanated from a host of other studies. The nature of the data indicated that means and standard deviations would be suitable to describe them, that t-tests would enable differences between data to be probed, that correlation tests would enable relationships to be identified, and that the multiple regression technique would enable investigation of the extent to which items or scales, when designated independent variables, predict or explain variance in other items or scales which are designated as dependent variables. All analyses were carried out using version four of StatView.

3.3 Development and Validation of the Research Questionnaires

This rather long section describes the development and validation of the three major data-gathering devices. In their turn, *My Class Environment* (MCE), *School Level Environment Questionnaire* (SLEQ) and *Images of Schools through Metaphor* (ISM) are given due attention. Because ISM is innovatory in its nature, considerable space is allocated to it. SLEQ is treated in detail elsewhere and thus little attention is devoted to describing its development here, although its validation is given close scrutiny. MCE was developed specifically for this study, but since it was derived from other instruments which are easily accessible, its development, though not its validation, is treated quite briefly.

3.3.1 Development and Validation of *My Class Environment* (MCE)

3.3.1.1 Background to MCE

My Class Environment (MCE) is a questionnaire which was developed specifically for this study in order to gauge Grade 5 to 8 students' perceptions of their classroom psychosocial environment.

MCE was derived largely from the *Learning Environment Inventory* (LEI). Fraser and Fisher (1983) pointed out that development of LEI began in the late 1960s in USA as part of the research and evaluation aspects of Harvard Project Physics, and that it is an expansion and improvement on Walberg's *Classroom Climate Questionnaire*. Fisher and Fraser (1981, p. 146) also indicated that LEI derived inspiration from the theoretical contributions of Getzels and Thelen. The version of LEI provided in Fraser and Fisher (1983) contains 15 scales with seven items per scale and is for use in secondary schools, with students being asked to respond to a four point scale ranging from "Strongly Agree" to "Strongly Disagree".

My Class Inventory (MCI) (Fraser and Fisher, 1983) was a strong candidate for selection as the tool to assess classroom environments in this study. MCI was developed for use with children in the upper primary grades, and it was derived from LEI (Fisher and Fraser, 1981). MCI contains three scales (Cohesiveness, Friction and Satisfaction) in Moos' Relationship Dimensions and two (Difficulty and Competitiveness) in the Personal Development Dimensions. MCI does not, however, address the third of Moos' basic dimensions, namely System Maintenance and System Change. Each scale in MCI employs between six and nine items, giving a total of 38 items. A Short Form of MCI (Fraser and Fisher, 1983), which has five items for each of the five scales, is also available.

A feature of MCI is that it requires students to answer "Yes" or "No" to each of its items. Enquiries by this researcher of a small panel of primary school Principals in Tasmania indicated that the youngest children/poorest readers in the study would, at best, require some special assistance in responding to a "Strongly Agree" - "Strongly Disagree" format of the LEI type, and, as a result, MCI's "Yes" or "No" format was judged to be more suitable for this study. MCI's better readability is also more closely attuned to the reading ages of this study's student group.

Yet another feature of MCI (as with LEI) is that a number of items are reversed in a way that may require children to respond in a double negative way. For example, to assess the scale known as Satisfaction, MCI asks students to respond "Yes" or "No" to the item "Some pupils don't like the class", and thus, to take a possible instance, when a child perceives that all children do like the class he or she may experience difficulties in selecting the correct response. Several members of the panel of primary school Principals referred to above indicated a degree of concern about the ability of young children to respond appropriately to such items.

In order to minimise fatigue and to eliminate the possibility of errors when transferring responses from one place to another, MCI requires students to respond on the questionnaire itself rather than on a separate response sheet as is the case with LEI (Fraser, 1986, p. 29).

MCE retains the positive aspects of MCI, but attempts to overcome some of its perceived weaknesses. Firstly, MCE addresses each of Moos' three broad dimensions equally. This is done by eliminating the scale Friction from the Relationship Dimensions, and adding two scales, Formality and Democracy, in the System Maintenance and System Change Dimensions. Further, because of some concern with

the Competitiveness scale in MCI (Fisher, personal communication), it was decided to eliminate it and substitute the scale known as Speed.

MCE employs five items for each of its six scales, so that, in total, students respond to 30 items. MCE, therefore, does pay attention to each of Moos' categories equally, but is far shorter than LEI (seven items for each of 15 scales in one version), and is somewhat shorter than the Long Form of MCI (a total of 38 items with between six and nine items for each of its five scales). Nevertheless, MCE is somewhat longer than the Short Form of MCI.

The simple language of MCI is retained in MCE, as are the simple response alternatives and the requirement that students respond on the questionnaire itself.

MCE attempts to overcome the "double negative" problem. This is done in two ways. Firstly, fewer items than in MCI are of the reverse type, and secondly, some of those items which are of the reverse type have been rewritten, so that, for example, "Some pupils are not happy in class" became "Some pupils are unhappy in class".

Table 3.3.1.1
Overview of My Class Environment (MCE)

Scale	Definition	Moos' Dimensions	Item Example
Cohesiveness	Extent to which students know, help and are friendly towards each other.	Relationship	In my class everybody is my friend. (+)
Satisfaction	Extent of enjoyment of class work.	Relationship	The class is fun. (+)
Speed	Extent to which class work is covered quickly.	Personal Development	The pace of the class is rushed. (+)
Difficulty	Extent to which students find difficulty with the work of the class.	Personal Development	Most children are able to do their school work without help.(-)
Formality	Extent to which behaviour within the class is guided by formal rules.	System Maintenance and System Change	There is a set of rules for children to follow. (+)
Democracy	Extent to which students share equally in decision-making related to the class.	System Maintenance and System Change	Decisions affecting the whole class are made by a few children. (-)

Items with a positive orientation (+) are scored 3 for 'Yes' and 1 for 'No' while those with a negative orientation (-) are scored in the reverse manner. Invalid responses are scored 2.

The six items for each scale of MCE were selected in the following way. For each of the scales Cohesiveness, Satisfaction and Difficulty (those which are also common to MCI), the five items in the Short Form of MCI were retained (rewritten where necessary to ease the "double negative" problem outlined above). For each of the scales Speed, Formality and Democracy, the seven items in LEI were scanned and the five which appeared to have greatest face validity for this study were selected for inclusion and rewritten in simpler language where necessary.

Finally, although the study proper employed MCE in the form which focusses upon the classroom as it actually is, it was developed in two different formats - Actual and Preferred. The Actual form invites students to describe their classroom environment as it actually is. The Preferred form, however, employs the same items, reworded appropriately, to describe the classroom environment as it would be ideally or as students would prefer it to be. Neither LEI nor MCI was developed originally in this manner, but in several recent investigations Fisher and Fraser and their colleagues modified LEI and MCI in this way.

Scoring arrangements for MCE are identical to those for MCI. "Yes" responses are scored 3 and "No" responses are scored 1, except in the case of reversed items (indicated by an underscore of the item number) "Yes" is scored 1 and "No" is scored 3. Invalid responses are scored 2.

In summary then, the scales and the items (except for some rewording) which make up MCE Actual are taken from previously validated instruments (LEI and its derivatives MCI and Short Form MCI), while MCE Preferred is merely a rewording of MCE Actual. Scoring procedures align with those for MCI.

Table 3.3.1.1 defines each of the scales addressed in MCE, indicates the broad dimension in Moos' conceptualisation to which each scale belongs, and provides an example of an item in each of those scales. The full versions of MCE Actual and Preferred are exhibited in Appendices A and B.

3.3.1.2 Validation Data for MCE

The data obtained by using MCE in this study were subjected to tests of the type used to validate the instruments from which it was derived. In all cases except one both the individual student and the class mean were used as the unit for statistical analysis. The data generated from the sub-sample of 162 teachers and classrooms which are the basis

of the study proper were employed, but for the sake of completeness the data generated from the larger samples were also used.

Firstly, the correlation coefficient for each item with the other items in its scale was determined. Two items, Number 15: 'There is lots of time for day-dreaming in class' in the Actual form, and Number 29: 'There would be few rules to follow in this class' in the Preferred form, correlated negatively with several other items in their scales and very weakly in the positive direction with the other items in those scales. Consequently, items 15 and 29 in both Actual and Preferred forms were eliminated from all future consideration in this study.

Secondly, Cronbach's (1949) alpha coefficient was applied to assess each scale's internal consistency reliability. In essence, this process compares variance in the part scores (in our case here, five part scores in each of the scales Cohesiveness, Satisfaction, Difficulty and Democracy and four part scores in both Speed and Formality) with the variance in the sum of those part scores and thus allows an estimate to be made of how well scores obtained by a single administration of an instrument represent universe scores.

Thirdly, discriminant validity of each scale was estimated through assessing the mean correlation of the averages of the absolute values of the scale with that of the other five scales.

Finally, the ability of each scale of MCE to differentiate between classrooms was tested by seeking an estimate of the amount of variance in classroom environment scores attributable to class membership through applying the Eta^2 statistic from one-way ANOVA, which is the ratio of between to total sums of squares.

Each of these tests was applied to MCE Actual and MCE Preferred data, except that the final test, the ability of the scales to differentiate between classrooms, was applied to the data generated by the Actual form only.

Table 3.3.1.2.1 displays the validation data for each scale of MCE Actual, while Table 3.3.1.2.2 shows the validation data for MCE Preferred.

Table 3.3.1.2.1

Validation Data for My Class Environment - Actual

(a) N = 177 classes and 2138 students

(b) N = 162 classes and 1923 students

Scale	Unit of Analysis	Alpha Reliability (a)	Alpha Reliability (b)	Mean Correlation with other Scales (a)	Mean Correlation with other Scales (b)	Eta^2 from ANOVA (a)	Eta^2 from ANOVA (b)
Cohesiveness	Student	.70	.69	.14	.14	-	-
	Class	.82	.82	.24	.22	.25***	.25***
Satisfaction	Student	.67	.67	.08	.08	-	-
	Class	.86	.86	.21	.19	.34***	.34***
Speed (ex item 15)	Student	.65	.65	-.27	-.26	-	-
	Class	.79	.79	-.40	-.41	.17***	.19***
Difficulty	Student	.52	.50	-.13	-.11	-	-
	Class	.65	.64	-.18	-.19	.16***	.16***
Formality (ex item 29)	Student	.42	.42	.04	.06	-	-
	Class	.63	.64	.08	.08	.21***	.22***
Democracy	Student	.72	.71	.02	.03	-	-
	Class	.78	.78	.37	.35	.18***	.18***

*** p<.0001

Table 3.3.1.2.2

Validation Data for My Class Environment - Preferred

(a) N = 177 classes and 2121 students

(b) N = 162 classes and 1912 students

Scale	Unit of Analysis	Alpha Reliability (a)	Alpha Reliability (b)	Mean Correlation with other Scales (a)	Mean Correlation with other Scales (b)
Cohesiveness	Student	.77	.77	.22	.22
	Class	.86	.86	.28	.30
Satisfaction	Student	.65	.63	.20	.20
	Class	.74	.75	.32	.36
Speed (ex item 15)	Student	.67	.67	-.35	-.35
	Class	.76	.76	-.24	-.39
Difficulty	Student	.45	.47	-.10	-.09
	Class	.52	.51	.06	-.01
Formality (ex item 29)	Student	.58	.57	.07	.06
	Class	.72	.72	.07	.08
Democracy	Student	.61	.61	.08	.08
	Class	.71	.71	.22	.19

Overall, the data reported in Tables 3.3.1.2.1 and 3.3.1.2.2 compare relatively favourably with similar data provided for other classroom environment assessment instruments. Fraser and Fisher (1983) gathered some such data in a convenient manner, and that source is drawn upon here and shown in Tables 3.3.1.2.3 and 3.3.1.2.4.

In comparison with the data displayed in Tables 3.3.1.2.3 and 3.3.1.2.4 it is clear that not all scales of *My Class Environment* exhibit good internal consistency when the individual is the unit of analysis. However, when the class is taken as the unit of analysis MCE's internal consistency appears to be satisfactory in all scales (Actual and Preferred) with a possible exception in Difficulty (Preferred).

Table 3.3.1.2.3
Validation Data for Other Classroom Environment Instruments - Actual Forms
(after Fraser and Fisher, 1983)

Instrument	Unit of Analysis	Alpha Reliability (Range)	Mean Correlations with other Scales (Range)	Eta2 from ANOVA (Range)
Individualized Classroom Environment Questionnaire (ICEQ)	Student	.68 - .79	.07 - .28	.20 - .43
	Class	.77 - .91	.16 - .32	-
Learning Environment Inventory (LEI)	Student	.54 - .86	-	-
	Class	-	.08 - .39	-
Classroom Environment Scale (CES)	Student	.51 - .75	.09 - .40	.18 - .43
	Class	.60 - .90	.08 - .42	-
My Class Inventory (MCI)	Student	.62 - .78	-	.18 - .31
	Class	.73 - .88	.13 - .30	-
ICEQ Short Form	Student	-	-	-
	Class	.68 - .85	.15 - .34	.21 - .39
CES Short Form	Student	-	-	-
	Class	.59 - .78	.29 - .43	.19 - .39
MCI Short Form	Student	-	-	-
	Class	.65 - .78	.11 - .30	.19 - .29

Table 3.3.1.2.4
Validation Data for Other Classroom Environment Instruments - Preferred Forms
(after Fraser and Fisher, 1983)

Instrument	Unit of Analysis	Alpha Reliability (Range)	Mean Correlations with other Scales (Range)
Individualized Classroom Environment Questionnaire (ICEQ)	Student	.67 - .75	.12 - .31
	Class	.75 - .92	.17 - .35
Classroom Environment Scale (CES)	Student	.50 - .75	.08 - .39
	Class	.60 - .86	.16 - .43
ICEQ Short Form	Student	-	-
	Class	.63 - .84	.13 - .36
CES Short Form	Student	-	-
	Class	.56 - .74	.31 - .36

On the other hand, in comparison with the scales of the other instruments reviewed in Tables 3.3.1.2.3 and 3.3.1.2.4, each scale of MCE enjoys a small mean correlation with the other scales. This indicates that MCE assesses six aspects of the classroom environment which are relatively distinct from each other (with some overlap between Cohesiveness, Satisfaction and Democracy, especially when the class is the unit of analysis). Furthermore, MCE, in comparison with the other instruments, is able to distinguish satisfactorily between different classrooms (as indicated by the Eta^2 statistic), especially in matters related to Cohesiveness and Satisfaction but less well in aspects concerned with Speed and Difficulty.

Two other important points which attest to the overall validity of MCE are:

1. Only 12 student returns from a total of over 4,200 had to be discarded as being unusable. In each case this was due to the respondent completing less than eighty percent of the questionnaire items.
2. Comparatively few students opted for an invalid response by circling both "Yes" and "No" to one or more items. Some students, indeed, wrote that they would have preferred a third possible response such as "Sometimes", but in most cases avoided any temptation to respond in an invalid manner.

3.3.1.3 Summary

In summary, *My Class Environment* (MCE) was developed from existing questionnaires (*Learning Environment Inventory* and its derivative *My Class Inventory*) in order to assess the nature of the actual and preferred psychosocial environments of classrooms (in the Grade 5-8 range) as perceived by students. MCE was administered to a large sample and the data were subjected to a number of tests to estimate several important characteristics. Two items (one in the Speed scale and another in the Formality scale) were eliminated from any further involvement in the analysis when they showed unacceptably low correlations with the other items in their scales. Generally, MCE in both its Actual and Preferred forms shows satisfactory internal consistency, especially when the class is taken as the unit of analysis. Further, each MCE scale demonstrates a sufficiently low correlation with the other scales, although three of the scales overlap somewhat, especially when the class is the unit of analysis. MCE, too, demonstrates that it can distinguish between different classrooms, particularly in the areas of Satisfaction and Cohesiveness. Finally, the small number of invalid returns indicates that students have little difficulty in following the instructions or in completing the MCE forms.

3.3.2 Description and Validation of School Level Environment Questionnaire (SLEQ)

3.3.2.1 Background to SLEQ

Development of the *School Level Environment Questionnaire* (SLEQ) is described in full elsewhere (for example in Fisher and Fraser, 1990; Fraser, 1986; Fraser and Rentoul, 1982; Rentoul and Fraser, 1983). Exhibits of the Actual and Preferred forms of SLEQ employed in this study are displayed in Appendices C and D. The salient features of SLEQ are presented in Table 3.3.2.1.

SLEQ was developed initially by Fraser and Rentoul (1982) and modified by Fisher and Fraser (1990). It now contains eight scales, namely *Student Support* and *Affiliation* (Relationship Dimensions); *Professional Interest* (Personal Development Dimension); and *Staff Freedom, Participatory Decision-Making, Innovation, Resource Adequacy* and *Work Pressure* (System Maintenance and System Change Dimensions). Each of these scales is assessed through seven items, with approximately half of the 56 items requiring reversed scoring procedures. SLEQ is available in Actual and Preferred formats, and responses, requiring selection between Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree, are usually made on a separate answer sheet.

Table 3.3.2.1
Features of School Level Environment Questionnaire

Scale	Scale Description	Sample Item	Moos' Category
Student Support	There is good rapport between teachers and students and students behave in a responsible self-disciplined manner.	Students get along well with teachers. (+)	Relationship
Affiliation	Teachers can obtain assistance, advice and encouragement and are made to feel accepted by colleagues.	My colleagues seldom take notice of my professional views and opinions. (-)	
Professional Interest	Teachers discuss professional matters, show interest in their work and seek further professional development.	Teachers show little interest in what is happening in other schools. (-)	Personal Development
Staff Freedom	Teachers are free of set rules, guidelines and procedures, and of supervision to ensure rule compliance.	I am allowed to do almost as I please in the classroom. (+)	System Maintenance and System Change
Participatory Decision-Making	Teachers have the opportunity to participate in decision-making.	I have very little say in running the school. (-)	
Innovation	The school is in favour of planned change and experimentation, and fosters individualisation.	Most teachers like the idea of change. (+)	
Resource Adequacy	Support personnel, facilities, finance, equipment and resources are suitable and adequate.	The school or department library includes an adequate selection of books and periodicals. (+)	
Work Pressure	The extent to which work pressure dominates the school environment.	You can take it easy and still get the work done. (-)	

Items designated (+) are scored in the range of 5 for Strongly Agree and 1 for Strongly Disagree while those designated (-) are scored in the reverse manner. Invalid responses are scored 3.

Two changes only were made to the version of SLEQ provided by Fisher and Fraser (1990). The first, in order to minimize the possibility of transference error, was to incorporate spaces for teachers' responses on the forms themselves.

The second was a change caused by a typographical error to item 15 in both forms of the instrument. The effect of the error was to change the item from one which would be scored in a reverse manner to one which requires scoring in a positive manner.

3.3.2.2 Validation Data for SLEQ

SLEQ was validated for this study through the application of four customary tests to the data which were generated as part of the study. The unit of analysis is the individual teacher.

The first test was the calculation of correlation coefficients between each individual item and the other items in its scale in both the Actual and Preferred forms. Item 39 in the Resource Adequacy scale of the Preferred form correlated negatively with four other items in its scale and positively but very weakly with the other two items in the scale. As a result, that item was eliminated from all further statistical enquiry. All other items in both of the forms showed adequate positive correlations with the other items in their scales.

The Cronbach Alpha coefficient test to assess each scale's internal consistency reliability was the second to be applied to the data. The results (for the larger sample of 288 teachers and also the smaller sub-sample of 162 teachers) are tabulated in Table 3.3.2.2.1 along with validation data from four other samples (sample 1: 83 teachers in 19 Primary and Secondary schools in Sydney, NSW; sample 2: 34 first year teachers in 34 NSW Secondary schools; sample 3: 109 teachers in 10 Primary and Secondary schools in Tasmania; sample 4: 46 teachers in seven schools in Tasmania and Western Australia) as reported by Fisher, Fraser and Wubbles (in press).

Table 3.3.2.2.1
Alpha Coefficient Values for SLEQ Scales

	Sample 1	Sample 2	Sample 3	Sample 4	Current Samples (after elimination of item 15 from each form)			
					N = 288 teachers		N = 162 teachers	
Scale	SLEQ Actual	SLEQ Actual	SLEQ Actual	SLEQ Actual	SLEQ Actual	SLEQ Preferred	SLEQ Actual	SLEQ Preferred
Student Support	.70	.79	.85	.92	.89	.78	.90	.82
Affiliation	.87	.85	.84	.85	.85	.73	.87	.69
Professional Interest	.86	.81	.81	.80	.83	.75	.83	.72
Staff Freedom	.73	.68	.64	.65	.60	.65	.65	.65
Participatory Decision-Making	.80	.69	.82	.79	.80	.67	.79	.67
Innovation	.84	.78	.81	.66	.82	.65	.80	.65
Resource Adequacy	.84	.80	.65	.76	.66	.63	.66	.58
Work Pressure	-	-	-	.85	.81	.58	.82	.55

The data provided in Table 3.3.2.2.1 indicate that SLEQ demonstrates satisfactory internal consistency reliability, especially in its Actual form and especially in those scales other than Staff Freedom and Resource Adequacy.

The third test to be applied to the SLEQ data was the test of correlation of each scale with the mean of the other seven scales. Table 3.3.2.2.2 presents the values which emerged and also provides values calculated from the first three samples described in relation to Table 3.3.2.2.1 above.

It is clear that, in the current study, a number of SLEQ's scales overlapped considerably when the correlations presented in Table 3.3.2.2.2 are perused and compared with the values generated in the other three studies. Braithwaite (1991), too, indicated that he had detected similar overlap between scales as a result of analysis of responses from 180 teachers in six Secondary schools in Sydney.

Table 3.3.2.2.2
Correlations between each Scale of SLEQ and the other Seven Scales

Scale	Form	Mean Correlation with Other Scales				
		Sample 1	Sample 2	Sample 3	Current study's results	
					N = 288	N = 162
Student Support	Actual	.19	.19	.10	.24	.19
	Preferred	-	-	.31	.55	.53
Affiliation	Actual	.34	.18	.38	.65	.58
	Preferred	-	-	.42	.63	.59
Professional Interest	Actual	.29	.29	.36	.69	.67
	Preferred	-	-	.43	.65	.60
Staff Freedom	Actual	.31	.05	.30	.19	.25
	Preferred	-	-	.30	.23	.27
Participatory Decision-Making	Actual	.34	.22	.34	.52	.46
	Preferred	-	-	.28	.53	.49
Innovation	Actual	.38	.22	.42	.67	.66
	Preferred	-	-	.31	.59	.58
Resource Adequacy	Actual	.22	.19	.35	.33	.28
	Preferred	-	-	.44	.49	.47
Work Pressure	Actual	-	-	-	-.11	-.02
	Preferred	-	-	-	-.13	-.21

Factor analyses of the data under discussion in the current study and of Braithwaite's data indicate that a "tidy up" of the factor structure could be achieved through the omission of a number of offending items and of one or two scales (especially Innovation and Affiliation). Similarly, the correlations between each scale and the other seven scales in the battery are improved if the scales Affiliation, Professional Interest, Participatory Decision-Making and Innovation are collapsed into a single scale which might be labelled "Engagement" (engagement with colleagues, with professional matters, with decisions and with change to match each of the four scales in turn). In such case the correlation coefficients generated by the current data (N = 162) become: Student Support 0.24; Staff Freedom 0.03; Resource Adequacy 0.20; Work Pressure; -0.16; Engagement 0.48.

Fisher's (1992) return personal communication (following his consultation with Barry Fraser of Curtin University of Technology in Western Australia) to Braithwaite did not try to explain away the high inter-scale correlations revealed in the latter's sample but did point out that SLEQ attempts to satisfy many "logical as well as statistical criteria" (e.g., by trying to maintain conceptually distinct scales which are considered to be important in the literature or by others such as teachers and students even if some modest correlations between the scales did exist). Fisher pointed out further that the requirement of having an equal number of items per scale in order to permit easy hand scoring can mean that one does not always omit certain mutually correlated items.

There is no doubt that the values presented for the current data in Table 3.3.2.2.2 must be kept in mind as the report proceeds. SLEQ (as with most other devices in this sphere of activity) is less than perfect in describing the psychosocial properties of a school, but also, of course, it is probably true that the current sample (and Braithwaite's) differs in some unknown way and to some unknown extent from other samples which have tested rather more positively in this respect.

The final test to be applied to the data was Eta^2 from one-way ANOVA to gain an indication of the capacity of SLEQ in its Actual form to differentiate between schools. Table 3.3.2.2.3 displays the results of this test.

Table 3.3.2.2.3
SLEQs Ability to Differentiate Between Schools

Scale	Eta^2 from ANOVA N=288	N=162
Student Support	.47***	.54***
Affiliation	.29**	.34
Professional Interest	.34***	.37*
Staff Freedom	.43***	.55***
Participatory Decision-Making	.34***	.50***
Innovation	.41***	.52***
Resource Adequacy (ex item 39)	.27**	.35
Work Pressure	.33***	.41**

* p<.05, ** p<.01, *** p<.0001

The Eta^2 values compare very favourably with those reported by Fisher, Fraser and Wubbles (in press) where it has been indicated that, in a study involving the sample number 3 alluded to above, Eta^2 values ranged from 0.16 to 0.40. This is especially so when the smaller sub-sample of 162 teachers is considered. Consequently it can be claimed with some confidence that SLEQ is able, in part, to distinguish between schools.

3.3.2.3 Summary

In summary, the data generated by administration of the Actual and Preferred forms of *School Level Environment Questionnaire* (SLEQ) were subjected to three tests. One item was eliminated from the battery as a result of its demonstrated low correlation with other items in its scale. Internal consistency reliability values were found to be generally satisfactory, however considerable overlap between a number of the scales may limit SLEQ's usefulness to some extent. A final test was applied to the Actual form of SLEQ and as a result it was concluded that SLEQ demonstrates a satisfactory capacity to distinguish between climates of different schools.

3.3.3 Development and Validation of Images of Schools through Metaphor (ISM)

3.3.3.1 Background to ISM

Images of Schools through Metaphor - Actual (ISMA) is a questionnaire which was developed specifically for this study. *Images of Schools through Metaphor - Ideal* (ISMI) was developed at the same time, and although, ultimately, it was not employed in the study proper, discussion of it within this section is deemed appropriate.

Each questionnaire consists of 26 metaphors, and respondents are invited to indicate the extent to which they agree or disagree, using a five point Likert-type scale, that each metaphor describes accurately their school (or an aspect of it) as it actually is (ISMA) or as it would be ideally (ISMI). The items in ISMA and ISMI are identical, but the instructions to respondents are somewhat different for each.

Space is provided for respondents to write additional metaphors which describe their school or an aspect of it. Responses are scored in the range of 5 for "Strongly Agree" to 1 for "Strongly Disagree", while invalid responses are scored 3. An example of each form of ISM is displayed in Appendices E an F.

3.3.3.2 Development of ISM

The development of ISM began as a result of experience with the *Organisational Culture Assessment Inventory* (OCAI) (Steinhoff and Owens, 1989). OCAI asks teachers, firstly, to write six brief paragraphs to describe something of their school's history, values and beliefs, organisational stories, unwritten expectations for behaviour, customs or rituals, and heroes. It then asks responding teachers to draw upon these aspects of their school in order to provide metaphors which describe the school, the Principal, the typical teacher in the school, and the school's community as they actually are and as they would be ideally. Teachers are then invited to offer reasons for their selections.

OCAI was employed by this researcher at several cross-school workshops for teachers and school administrators in Tasmania in early 1991. While OCAI proved to be useful in a number of respects, generally it became evident that it was too cumbersome and time-consuming for use in workshop settings (of the cross-school type at least), and it was expected that it would be unmanageable in conducting a large-scale study which employed statistical analysis techniques to answer research questions of the sort which are the focus of this study. Further, although Gardner and Winner (1979, p. 124) argued that adults enjoy metaphoric competence in that they '. . . can almost always understand, paraphrase, and produce metaphors . . .', it was noted (and Steinhoff and Owens, 1989, p. 21, did refer to the possibility) that workshop participants had some difficulty in generating metaphors, or at least in generating metaphors that were vibrant and full of life. If school as Community, school as Factory, school as Garden and the like were proposed and discussed by participants, little enthusiasm was shown. When the facilitator, however, offered the set school as Firm-Family-Fair-Forum (Baker, 1991), or when he suggested school as Orchestra or as Spaceship, for example, the workshops positively buzzed with enthusiasm for the task at hand.

A completed example of OCAI for a hypothetical school (with "school as Museum" as the dominant image) was used to good effect at a workshop at the 1991 conference of the Australian Council for Educational Administration (Fisher, Grady and Mulford, 1991). Following this conference, a senior administrator of a large distance education school in northern Australia sought feedback of the type generated by OCAI and this researcher accepted the invitation to offer OCAI to the staff of her school. Returns of OCAI, in terms of the numbers of complete and incomplete efforts, were disappointing.

Interactions with the teaching profession, however, had pointed to the possibility of assembling a set of metaphors together in the form of a questionnaire. The workshops and other contacts with the profession provided a number of candidates for inclusion in such a set. The literature was a valuable source of possibilities too. Kelly's (1991) study was helpful in this respect as well. Kelly developed the *School Images Survey* (SIS) to invite school personnel to select and suggest images which described their school, and received responses from 228 members of staff (Principals, Deputy Principals and teachers) and 344 students from 20 schools in Queensland, New South Wales, Victoria and South Australia.

First drafts of ISMA and ISMI (in addition to OCAI) were offered to staff in the distance education school referred to above. A second draft of ISMA was prepared and this was employed with a sample of about 20 teachers in one Tasmanian Secondary school (Baker, 1992). Baker (1992) also asked her respondents to provide an explanation of their interpretation of those metaphors which they either strongly agreed or strongly disagreed depicted their school. Inspection of responses gathered by Baker indicated that school as Museum, Beehive, Olympic Games, Bubbling cauldron, Circus, Church and, perhaps, Orchestra, were those metaphors in the list which generated the most divergent images among this sample, while several other responses indicated that school as Knowledge workplace, Learning centre and Sense-making community may be what schools literally, rather than metaphorically, are.

This second draft of ISMA was also presented and discussed at a post-graduate education class in Tasmania during January, 1992. Outcomes of this session prompted the writing of a third draft. In particular, those items of the second draft which appeared to generate little tension between the two components of the metaphor, e.g., school as Knowledge workplace, school as Learning centre, and school as Centre of student engagement were omitted, to be replaced by others such as school as Artist's palette and school as Herd.

This third version of ISMA (which is displayed in Appendix G) was offered to a second class of 25 post-graduate education students during January, 1992. These educators come from Queensland, Western Australia, South Australia, Victoria, New South Wales and Tasmania. Some are from state education systems while others are from private schools; some are from Primary and Secondary areas of education, while others are from the tertiary sphere (including nurse education, technical and further education, and seminary training for the priesthood); and some have as little as 2 years teaching experience while others have in the vicinity of 30 years of relevant experience in a range of educational systems.

Once responding to the 40 items in the third draft of ISMA, all 25 respondents attended to a second questionnaire, the purpose of which was to determine, in a more structured manner than that adopted by Baker (1992) as outlined above, the extent that each metaphor described a common image of schools. Respondents were asked to reveal what sort of image they had in mind when they indicated that their schools were or were not depicted by the various metaphors listed in ISMA. They were asked to select one of two alternatives which most nearly described the image they had, but were informed that if neither of these two alternatives depicted adequately the image they had in mind then they should supply a sentence that did depict it adequately. This validation questionnaire is exhibited in Appendix H.

Prior to its administration, several of this researcher's colleagues, each vastly experienced in education, were asked to comment on this latter validation questionnaire from three particular viewpoints:

1) Is each alternative image offered a reasonable one?
2) Do the alternatives for each item represent a reasonable spread of possible responses?
3) Are the alternatives offered for any item sufficiently different from those offered for other items?

Slight changes were made to a number of items on this questionnaire as a result of the feedback given by the validation panel.

Upon completion of ISMA and this validation questionnaire, 23 of the 25 respondents were interviewed to assess:

1) whether they had any difficulties with the two sets of instructions;

2) whether they were satisfied that the alternatives selected by them from the validation questionnaire depicted adequately the images they had in mind; and

3) whether they were satisfied that any alternatives they added to this questionnaire depicted their image adequately.

Minor amendments only were required to the instructions for completing ISMA as a result of these interviews. In the development of a fourth draft of ISMA it was decided to eliminate any items that could not satisfy, as a result of this pilot group's reactions to ISMA and the accompanying validation questionnaire, the three criteria outlined below:

1) Each item must yield a high level of agreement between respondents concerning the image they had in mind when they indicated that their school was or was not depicted by the metaphor. The pre-selected standard was that at least 18 of the 25 respondents (in excess of 70%) must agree on the image they had in mind.

2) Each item must attract relatively few neutral/unsure responses from the respondents. In this case the pre-selected standard was that none of the remaining items should yield neutral/unsure responses from more than 30% of the respondents.

3) Given the variety of backgrounds and teaching situations of the pilot group, each item must yield a wide spread of responses concerning the extent to which it does or does not describe respondents' schools. The pre-selected standard here was that at least four of the five points on the Likert-type scale for each item should attract support.

Fifteen items were omitted from draft three of ISMA as a result of failing to meet the first criterion. Table 3.3.3.2.1 indicates the extent to which the remaining 25 items were reported as coinciding adequately with the image the respondents had of their schools.

Table 3.3.3.2.1

Consistency of Meaning of Items of ISM

Number of items	Number of respondents agreeing that these metaphors coincided with the image they had in mind
1 (Mental straight-jacket)	25 (100%)
3 (Family, Beehive, Team)	24
3 (Culture, Living organism, Traffic jam)	23
5 (Quest, Forum, Creche, Expedition, Prison)	21
7 (Exhibition, Garden, Shopping mall, Military camp, Ghetto, Artist's palette, Olympic Games)	20
3 (Orchestra, Machine, Negotiating area)	19
3 (Herd, Hospital, Museum)	18 (72%)

This means that all members of the pilot group of 25 respondents had a relatively common understanding of what school as Mental straight-jacket indicated, while, at the other extreme, 18 of them (72%) had a relatively common understanding of what school as Herd, as Hospital and as Museum indicated. It is to be noted, though, that school as Beehive, as Olympic Games, as Orchestra and as Museum, which passed the test here, were questioned somewhat as a result of Baker's survey (1992).

One further item (school as Quest, which satisfied the first criterion) was omitted for failing to satisfy the second criterion. Table 3.3.3.2.2 indicates the number of neutral/unsure responses for the 24 items which now remained in the inventory.

Table 3.3.3.2.2 indicates that of the 24 items remaining in ISMA at this stage, only two received a neutral/unsure response from seven respondents (less than 30% of the total number of respondents), and that all other items attracted fewer than seven such responses.

Table 3.3.3.2.2

Respondents' Neutral or Unsure Responses to ISM Items

Number of items	Number of neutral/unsure responses
1 (Prison)	0
2 (Hospital, Military camp)	1
3 (Mental straight-jacket, Living organism, Ghetto)	2
7 (Culture, Herd, Orchestra, Museum, Beehive, Expedition, Team)	3
2 (Machine, Traffic jam)	4
3 (Family, Creche, Artist's palette)	5
4 (Forum, Garden, Negotiating area, Olympic Games)	6
2 (Exhibition, Shopping mall)	7

All of these 24 items satisfied the third criterion as well. Both "strongly agree" and "strongly disagree" were selected at least once for each of 18 of the items, while all of the items received support at at least four of the five points on the response scale.

Only one respondent elected to add another metaphor to ISMA, indicating that the set of 40 metaphors, collectively, seemed to provide an adequate range of images for them to describe their schools. Nevertheless, it was decided to test ISMA, in its 24 item version, against a fourth criterion: Do the items, collectively, reflect adequately the range of images that teachers in the research sample are likely to have of their schools? The small expert panel referred to above was invited to comment on the extent to which this criterion was satisfied. Members of the panel indicated, firstly, that, with the omission of school as Circus from the battery, an image of school as a place for entertainment/excitement/fun/performance and the like was probably missing. The earliest version of ISM included school as Circus/Cabaret/Theatre" in the selection, but the workshop process eliminated the latter two elements. Given Starratt's (1990) position on school as a setting which is concerned with drama, school as Theatre was reintroduced. Secondly, panel members suggested that the image of school as a place where academic excellence is sought was probably not attended to in the 24 item version. Consequently, consideration was given to including school as Academy or

school as University, for example, but these options were not taken up because of the belief that there was insufficient tension between the two components of the metaphors (just as, for example, school as Learning centre and school as Centre of student engagement did not display such tension and were eliminated earlier in the process). Nevertheless, remembering Socrates' "teacher as Midwife" metaphor alluded to in the Introduction to this thesis, "school as Labour ward" was added in the expectation that it might conjure up an image associated with bringing children to a stage where they can embrace life, including a life of learning and creativity. The addition of school as Theatre and school as Labour ward brought ISM to 26 items.

The development process continued with this 26 item version. It will be recalled that the validation group of 25 referred to above were all experienced teachers undertaking post-graduate studies in education. In order to obtain the views of younger, less experienced educators, the members of a Tasmanian class of final year Bachelor of Education with Honours students (N = 11) were invited to complete the ideal form - ISMI - just prior to commencing a practice teaching placement in 1992. In addition, these respondents completed a validation questionnaire adapted from that shown in Appendix H which had been used in the process referred to above.

The eleven respondents had no difficulty in following the instructions or in completing ISMI. All 11 indicated that they had in mind a common image for eight of the 26 items, while 10 had common images for another four of the items, nine had common images for a further six items, and seven had common images for another four items.

Only five of the 11 respondents indicated a common image for the four remaining items - school as Exhibition, as Museum, as Theatre and as Labour ward. Agreement at this level is unsatisfactory, but it was decided to leave these four items in ISM for the time being.

Four of the 25 items (school as Forum, as Exhibition, as Hospital and as Museum) evoked a "neutral or unsure" response from five or more of the eleven respondents. Again, this aspect was regarded as being somewhat unsatisfactory but it was decided to leave them in the battery awaiting further validation during the study itself.

There was a satisfactory spread of reaction for most items from the 11 student teachers, given the relative homogeneity of the group (relatively young, generally female, relatively common course of study), especially for the items other than Herd, Mental straight-jacket, Military camp, Ghetto and Prison. Given that this group responded to

the Ideal form of ISM, this reaction to items which might be classified as being intuitively negative is hardly surprising, and hence this factor did not prompt any change to the inventory.

Just one of the 11 respondents elected to add further metaphors to the ones provided. These were school as Incubator and as Adventure, which, perhaps, are not unlike school as Labour ward and as Expedition respectively, and thus they did not cause any change to ISM.

Given that the approach taken here owes a debt to Pepper (1942), as indicated in Chapter 2, it is regarded as desirable to ensure that the collection of metaphors ought demonstrate some congruence with the root metaphors which underpin his four "adequate" world hypotheses. It will be recalled that these hypotheses and their root metaphors are: *formism* - reflecting similarity, norms and laws of nature; *mechanism* - concerned with machine-like matters; *contextualism* - concerned with the historical event, the act, the incidents of life, novelty and change; and *organicism* - relating to organism and integration. It was judged that each of these is represented at least once by the items constituting ISM - *formism* by, for example, school as Culture, as Orchestra, as Team; *mechanism* by school as Machine and as Herd; *contextualism* by, for example, school as Exhibition, as Expedition, and as Traffic jam; and *organicism* by, for example, school as Family, as Garden, as Beehive and as Living organism.

The process outlined above brought ISMA and ISMI to the stage of development reflected in the exhibits contained in Appendices E and F.

3.3.3.3 Validation of ISM through the Study Data

Further validation data emerged from the study itself and these are presented and discussed below.

Test-retest reliability of ISM was assessed by selecting at random 30 of the respondents to the study who had identified themselves by name. They were invited to complete ISMI a second time - ranging from approximately three weeks to two months after the initial administration. Responses were received from 26 of these people and the data were subjected to a 2-tailed t-test for related samples, which tests the hypothesis that the mean of the differences between pairs is equal to zero. When a t-value is small the probability of it occurring by chance is high, while if the t-value is large the probability

Table 3.3.3.3.1

Values from t-test (2-tailed) for test-retest reliability of ISM Ideal and "split half" Alpha reliability coefficients for ISM Actual and Ideal

Item		t-value ISMI (N= 26)	t-value ISMI (N=15)	Alpha ISMA (N=283)	Alpha ISMA (N=162)	Alpha.. ISMI (N=281)	Alpha ISMI (N=162)
1.	Culture	-.46	0.00	2.00	2.03	2.00	1.98
2.	Herd	-1.36	-.62	2.00	2.02	2.02	2.02
3.	Family	2.31*	1.00	1.98	1.86	1.94	2.05
4.	Forum	2.31*	1.47	1.98	1.86	2.00	1.95
5.	Exhibition	.42	0.00	2.00	1.98	1.98	2.02
6.	Orchestra	.21	.46	1.98	2.00	1.98	1.96
7.	Hospital	-.75	-.25	1.98	2.00	1.98	2.05
8.	Creche	.33	-.21	2.00	2.01	1.95	1.95
9.	Museum	-.96	.32	2.00	2.04	2.00	2.02
10.	Garden	1.43	.85	2.02	2.32	1.98	2.00
11.	Mental straight -jacket	-1.00	-1.87	2.00	1.98	1.87	2.00
12.	Shopping mall	-.15	.21	2.00	2.04	2.00	1.98
13.	Beehive	.53	.19	2.02	2.00	2.03	1.98
14.	Military camp	-.44	-.56	2.00	2.00	2.00	2.04
15.	Ghetto	-.57	1.00	2.03	2.00	2.00	2.22
16.	Artist's palette	.65	-.82	2.00	2.04	2.02	2.02
17.	Machine	-.20	-1.16	2.03	2.00	2.00	1.93
18.	Expedition	-.49	-.56	2.00	2.02	2.00	2.00
19.	Team	.44	0.00	2.00	1.98	1.87	2.00
20.	Traffic jam	-3.14**	-1.44	2.02	2.00	2.10	2.00
21.	Negotiating area	.78	1.16	2.00	2.06	1.92	1.96
22.	Prison	-1.44	-1.00	1.96	2.04	2.13	2.00
23.	Olympic Games	-.84	.62	2.00	1.98	2.01	2.02
24.	Living organism	-.72	.44	2.03	2.03	1.97	2.00
25.	Theatre	2.31*	2.10	2.00	2.00	2.02	2.04
26.	Labour ward	.68	.82	2.00	2.04	2.00	2.02

* p<.05 ** p<.01

of it occurring by chance is small and hence statistically significant at one level or another. T-values were calculated also for the pairs of data relevant to the 15 (out of 26) subjects who qualified for inclusion among the 162 cases in the study proper. The results of this test-retest exercise are displayed in the first two columns of Table 3.3.3.3.1.

With the N = 26 sample, in only four cases, those of school as Family, as Forum, as Traffic jam and as Theatre, was there a statistically significant change between the first and second administrations of ISMI, while in the case of the sub-sample (N = 15) not

one item demonstrated a statistically significant change between the two administrations. This attests to the stability of the Ideal version of ISM - assuming of course that people's images of their school as it ought be are relatively stable over time.

Table 3.3.3.3.1 also displays the results of a "split half" probe of the data associated with the Actual and Ideal forms of ISM in order to gain some insight into the reliability of the instruments. The relevant equation is:

$$2 \times 1 - \frac{\text{variance of odd rows + variance of even rows}}{\text{total variance}}$$

(Cronbach, 1949, p. 161), which is simply an adaptation of the customary Cronbach Alpha equation employed elsewhere in this study. A benchmark against which the "split half" Alpha results could be compared is 2; that is, a result of 2 indicates a very high degree of reliability for any item. Again, results are tabulated for the teachers who made up the sample as a whole and for the sub-sample of 162 which was made up of those respondents who were included in the study proper.

It can be seen that there is a very liberal sprinkling of results which match the benchmark exactly, while many others are within several tenths of that standard. Those items which do indicate a reliability score somewhat distant from the benchmark are school as Family, as Forum and as Garden in ISM Actual when the smaller sub-sample is considered, and school as Mental straight-jacket, as Team, as Traffic jam and as Prison in the case of the larger sample, and school as Ghetto in the case of the sub-sample when the ISM Ideal form is under scrutiny.

Given the results reported in Table 3.3.3.3.1 and described above it would be fair to judge the majority of items in ISM Actual and Ideal as demonstrating acceptable reliability. There are several items, though, which obviously need to be treated with some caution.

Turning to another aspect which deserves attention, it is judged that ISM ought be able to distinguish between schools as they are perceived to be by teachers within them. Consequently ISMA data were subjected to the Eta^2 test from one-way ANOVA in order to gain an estimate of the proportion of variance which can be attributed to a teacher's school membership. Table 3.3.3.3.2 displays the Eta^2 results for the larger sample and for the sub-sample. It is clear that school membership accounts for some not inconsiderable part of the variance in ISMA scores (ranging from a low of 14 percent to a high of 35 percent in the N=283 sample and from 22 percent to 45 percent

in the N=162 sub-sample). This means, in other words, that ISMA is not insensitive to the nature of the school setting within which teachers work.

Table 3.3.3.3.2

Eta^2 values for items in ISM (Actual)

Item	Eta^2 value (N=283)	Eta^2 value (N=162)
School as		
Culture	.18	.32
Herd	.22	.31
Family	.35***	.42**
Forum	.22	.35
Exhibition	.29**	.45**
Orchestra	.17	.23
Hospital	.19	.37
Creche	.31***	.42**
Museum	.21	.32
Garden	.30**	.37*
Mental straight-jacket	.19	.26
Shopping mall	.28**	.41**
Beehive	.16	.28
Military camp	.22	.32
Ghetto	.24*	.29
Artist's palette	.15	.26
Machine	.23*	.34
Expedition	.24*	.29
Team	.33***	.39*
Traffic jam	.25*	.26
Negotiating area	.26**	.36*
Prison	.22*	.28
Olympic Games	.23*	.38*
Living organism	.14	.22
Theatre	.21	.36
Labour ward	.21	.35

* p<.05, ** p<.01, *** p<.0001

If ISM describes the diversity of a school adequately (as it actually is and as it would be ideally), the correlations between the descriptors will be large enough to indicate a degree of overlap between them, but not so large as to deny their ability to discriminate between different aspects of the school. Consequently, correlations between each of the 26 items in ISMA were calculated and so too were correlations between each of the 26 items in ISMI. This meant that 325 correlations were calculated for each form of ISM. It is inappropriate to display all of these here, but of these totals ISMA yields 100 negative correlations (slightly more than 30%) while ISMI yields 80 negative correlations (almost 25%). In addition, ISMA yields just 16 correlations greater than or equal to 0.4 (the highest being between school as Prison and school as Mental straight-jacket at 0.59), while ISMI yields a mere three correlations greater than or equal to 0.4 (Prison with Mental straight-jacket at 0.68, Prison with Traffic jam at 0.41, and Expedition with Garden at 0.43). This means that almost 65% of the ISMA correlations are positive but weak (less than 0.4) and that almost 75%of the ISMI correlations are similarly positive but weak. Consequently, it is not unreasonable to conclude that the set of items within *Images of Schools through Metaphor* can capture something of the rich and complex tapestry which we know schools to be.

Table 3.3.3.3.3

Additional Metaphors Provided by Respondents

Actual	Ideal
Chrysalid	Pathway
Community	Stud farm
International airport	Symphony
Refuge	Jewel
Ocean	Choir
Board game	Patchwork quilt
Holiday camp	Open door
Jacob's coat	River
Court room	Photographic darkroom
Rainbow	Lighthouse
Pressure cooker	Old shoe
Jellyfish	Debating society
Whirlpool	Reading room

This claim is strengthened when it is realised that respondents were invited to add other metaphors at the foot of their returns. Twenty seven of the respondents (less than 10 percent of the larger sample) made contributions in this respect. Those metaphors

which seem to differ somewhat from those contained within ISM are listed in Table 3.1.3.3.3.

3.3.3.4 Clusters of ISM Items from Factor Analysis

In order to gain a more parsimonious picture of teachers' images of their schools, the data generated by the actual form of ISM were factor analysed.

Following a close inspection of the factor loadings generated when various numbers of factors were identified (from four to 13 in number) it was thought that a six factor model fitted the data best. Table 3.3.3.4 portrays the factor loadings in the six factor model for each of the 26 items of ISMA.

Twenty two of the items loaded moderately to heavily on one factor alone and either negatively or weakly on the other five factors. Three items, school as Forum, as Traffic jam and as Olympic Games, each loaded moderately on two factors. School as Shopping mall loaded weakly on three factors and negatively on the others. In what follows school as Shopping mall has been designated as a member of the cluster which loads primarily on Factor 5. This is not altogether satisfactory, but as will be seen later school as Shopping mall can be located with school as Hospital, as Creche and so on with some justification.

Table 3.3.3.4

Items of ISM and their Loadings on Six Factors

ISM Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Family	.40					
Forum	.44			.41		
Artist's palette	.54					
Team	.73					
Negotiating area	.69					
Mental straight-jacket		.58				
Military camp		.70				
Ghetto		.49				
Prison		.56				
Beehive			.64			
Traffic jam			.54		.42	
Olympic Games			.41	.42		
Living organism			.76			
Theatre			.62			
Culture				.79		
Exhibition				.87		
Orchestra				.44		
Garden				.54		
Expedition				.44		
Hospital					.90	
Creche					.65	
Shopping mall					.30	
Labour ward					.60	
Herd						.50
Museum						.47
Machine						.85

3.3.3.5 Definitions of ISM Items

A key aspect of the approach adopted in this study was that respondents, when asked to describe the image they had of their school, were not provided with definitions of the terms which they were to employ. Through this approach effects of the researcher's biases on the results may have been minimised.

It was indicated above that each of the 26 items which remained in the version of ISM used in the study had passed a number of validation tests. One of these tests was that each of the items should be judged by teachers who participated in the field testing of the instrument to summarise consistently a particular image of schools (as they are or as they would be ideally).

Some respondents in the field testing process were quite eloquent in their description of some of the items of ISM. What is more, these descriptions sometimes ranged over a wide variety of aspects. In order to focus the definitions on what seem to be the most important features it was decided to delay defining the items until the factor analysis process had been undertaken.

Given the field testing responses at hand and the results of the factor analysis reported in section 3.3.3.4 above, it is now possible to offer definitions in an *ex post* manner for each of the items in ISM.

In reading the definitions supplied below it is essential to recall the instructions given to the teachers engaged in the field testing process. They were not asked to define, "Family", "Museum", "Labour ward" and so on *per se*. Instead, they were asked to indicate the nature of the image they had in mind when they thought of their school as, for example, a Family, a Museum and a Labour ward. Thus, while teachers regard school as Family, for example, in a very positive manner as indicated below, this does not mean that they are necessarily out of touch with the reality that many families do not fit this sort of description in the least.

The items are grouped in their six clusters as revealed by factor analysis. This arrangement ought facilitate comparison between "like" items and also assist the reader in assessing where some other image of school might be located (for example, one could guess that school as Parliament might be consistent with some of the features of the items in the first cluster, that school as Whirlpool might be best placed in the third

cluster, or that school as Supermarket might be matched with those in the fourth cluster).

Cluster 1 (those items which load on Factor 1)

School as Family

Teachers tend to view school as Family as a close, supportive, sharing, helping group that nurtures its members, provides them with an identity, has a common tradition and deep relationships, which may be characterised by bickering and arguing at times but sticks together in good times and bad, and which empowers everyone to have a say in matters relevant to the group.

School as Forum

School as Forum is an image characterised by active communication between those who seek knowledge and understanding and by a desire and capacity to resolve issues in a democratic manner.

School as Artist's palette

The image described by school as Artist's palette is quite attractive to many teachers in that they see it refering to a wealth of riches in the form of dabs of already beautiful colour awaiting the artist's (teacher's) skill which, once applied in a balanced manner to a canvas enables a work of art to emerge occasionally. This image, though, is tempered by a general recognition that the palette sometimes degenerates to become an amorphous, uncontrolled mess where individuality is lost and which, despite the efforts of the artist, results in failure.

School as Team

School as Team is concerned with everybody being a valued contributor as they strive together in a cooperative manner towards common goals.

School as Negotiating area

This image involves people sharing ideas and motivating each other in an effort to reconcile differences. Teachers often see these activities occurring in a relatively formal manner, occasionally with the aid of an identified facilitator. While there are occasions when such negotiation involves attempts to accommodate needs of both parties, teachers recognise that there are times when a win-lose orientation may be adopted. A parallel is sometimes drawn with stereotypical employer-trade union negotiations in a conciliation/arbitration setting.

Cluster 2 (those items which load on Factor 2)

School as Mental straight-jacket

School as Mental straight-jacket is concerned with the use of offensive power by some to stifle any choice and any form of academic argument, social diversity or dissent from prescribed dogma.

School as Military camp

Teachers describe school as Military camp in terms of rigid, mindless, humourless discipline based on the promise of dire consequences for any behaviour which deviates from the "rule book", through which regimentation and conformity are ensured and individuality is denied.

School as Ghetto

This image focuses on segregation, deprivation, discontent, hopelessness, darkness, overcrowdedness and threat to life and limb.

School as Prison

School as Prison is an image characterised by suppression, restraint, systematic dehumanisation and brutalisation, punishment and attempted reformation. Prison is a place from which one can barely wait to escape.

Cluster 3 (items which load on Factor 3)

School as Beehive

School as Beehive tends to be quite positive among teachers to the extent that they see it being concerned with cooperative activity toward a goal. However the image is tarnished somewhat by a general recognition that the activity may not always be necessary and that the goal may not always be one which is well thought through and judged worthy of wholehearted pursuit.

School as Traffic jam

This image depicts school as a congested entity within which there is much activity, but activity which is confused, unproductive, and a waste of time which culminates in a lack of progress in the educational endeavour. In a sense the Traffic jam results from communication channels being engineered and controlled in an inadequate fashion.

School as Living organism

School as Living organism is seen to be a system, with a personality and a range of moods, which processes inputs and thus grows and develops constantly as it learns from and adapts to stimuli. Such learning and adaptation, however, is limited by some form of blueprint laid down by an outside force.

School as Theatre

School as Theatre is a venue for much drama with protagonists and antagonists. Scripts are interpreted by players, but essentially the scripts confine them. No two performances are exactly alike as a consequence of the humanity of the performers and the fickleness of the audience.

Cluster 4 (those items which load on Factor 4)

School as Culture

School as Culture is taken to be a meaningful system of values, norms, beliefs and assumptions which underpins people's thoughts and actions. This system grows out of the history of the school and is maintained and strengthened through attention to celebration, storytelling, mythmaking, hero-worship and the like.

School as Exhibition

This image of school is seen by teachers to be concerned primarily with presenting a facade which demonstrates and acknowledges a range of achievements. The Exhibition is often designed to impress onlookers.

School as Orchestra

Teachers view this image as being concerned with talented people creatively and cooperatively pursuing a common purpose. The Orchestra keeps many items in repertoire and these, invariably, are performed very well. The repertoire is not static, however the Orchestra is slow to learn new pieces and will not allow public performance of them until they are polished as well as the old ones. Speed is not of the essence and, indeed, the pauses between the notes are regarded as being as important as the notes themselves. Public performance is extremely important and there is absolutely no scope for deviation during the performance itself.

School as Garden

This image is concerned primarily with differential growth, variety, nurture and complementarity of function. There is a recognition that within the Garden there are weeds and dead wood, but that this means there is a challenge to overcome any

difficulties through careful cultivation and lots of attention. As with school as Orchestra, the showy public face of the Garden is something more than the sum of its parts.

School as Expedition

School as Expedition is concerned with courage, challenge and risk and, to an extent, with excitement during particular phases of the journey (although there may be periods of hard, mundane labour as well). While not everyone concerned may agree that the destination is the most worthy one there is a recognition that the Expedition can succeed only if people act cooperatively in planning the route to take and in acquiring and applying the necessary resources. Painstaking attention to detail is critical.

School as Olympic Games

This image is concerned largely with a powerful goal orientation, strict training regimes, self-discipline, concentration, dedication, determination and a strong drive to better one's previous personal best. There are laurels at the end for all those who participate. There is much diversity and scope for specialisation. This diversity is reflected in part in the emergence of such Games for different categories of people such as elite, disabled and veteran athletes. There are strict rules for participants to follow and the whole public performance is very highly organised, requiring the cooperation of everyone concerned.

Cluster 5 (items which load on Factor 5)

School as Hospital

School as Hospital is seen to be an impersonal, formal, sterile site, occasionally characterised by feverish activity, where professionals treat the sick and injured.

School as Creche

This image is concerned with people being treated as though they are immature. This occurs in a setting where safety is of paramount concern, so everything is organised within a set of formal and informal rules which offer limited scope for personal expression and risk-taking. While there may be lots of noise and activity within a Creche, in many respects it is custodial in nature.

School as Shopping mall

School as Shopping mall is busy, loud and action-oriented, which permits a large range of choices in satisfying human needs. It can be seen as "a bit of this and a bit of that but in a sense not much of anything really".

School as Labour ward

The school as Labour ward image portrays school as a none too pleasant place with much groaning, moaning, perspiration and hard work by young and old, followed eventually in most cases by a sense of relief coinciding with the creation of new life and meaning.

Cluster 6 (items which load on Factor 6)

School as Museum

The image of school as Museum depicts the school as a repository of remnants from the past. These relics may be informative and interesting but they are perceived as being old and/or dead and quite properly shut away in glass cases. These memorials (when thinking about how this applies to teachers) were, perhaps, once useful and productive in one way or another, but now they are largely redundant phantoms from a bygone age who tend to go about their days in a zombie-like manner.

School as Machine

When teachers imagine schools as Machine they tend to perceive action without thought, precision without humanity, systematic functioning without a capacity to adapt, and productivity without emotion. This image, however, does not deny that a machine may be an engineering masterpiece which is an efficient, and indeed elegant, means of producing a limited range of products.

School as Herd

Teachers tend to see school as Herd in terms of a mindless mob without direction of its own. However a herd, it is thought, can be easily led and prodded along by others and made to conform in some sort of programmed way to a particular set of views.

3.3.3.6 Labels for Clusters of ISM Items

It will be recalled that five items of ISM load heavily on Factor 1 and (excepting school as Forum which also loads on Factor 4) at the same time load weakly on the other five factors. These items are school as Family, school as Forum, school as Artist's palette, school as Team and school as Negotiating area. These five images are concerned essentially with **cooperation**. One of the strongest common threads which runs through the four images which load on Factor 2 is **suppression**. The items which load on Factor 3 are diverse in many respects, although a common thread which runs through the five images (including school as Olympic Games) is **constrained activity**. Each of the seven images which belongs to Group 4 seems to be concerned with public performance and recognition following courageous, planned, cooperative,

goal-directed activity. If all of this can be reduced to one word perhaps that word would be **celebration**. The images which load on Factor 5 (school as Hospital, as Creche, as Shopping mall and as Labour ward, plus, to an extent, school as Traffic jam) seem to be concerned largely with activity, but activity which is the consequence of judgements made by well qualified decision-makers acting within the contingencies of the situation. This form of activity is somewhat different from the sort which may be scripted by some outside agency as appears to be relevant to the cluster of images which load on Factor 3. In addition, this set of images is concerned largely with satisfying people's **basic needs** in a rather noisy setting. A common denominator among the three images which load on Factor 6 is that each is concerned in part with being controlled by a remote source - by the past, by mechanical engineers, or by drovers/musterers based, perhaps, in "Head Office". One word which may suffice to label this cluster of images is **mechanistic.**

3.3.3.7 Summary

At this point it may assist if a brief summary of the development and validation of ISM is provided.

Images of School through Metaphor (ISM) in its two forms (Actual and Ideal) are innovatory in concept and nature. ISM underwent extensive tests as it moved through its various draft stages and the data generated by it in the study itself were subjected also to several statistical tests in order to validate it further. It is concluded that ISM is a convenient tool which facilitates an economical scan of teachers' images of their school (as they are and as teachers would like them to be). Teachers' images associated with most of the items appear to be relatively similar and few of them seem to prompt ambivalent responses. ISM in its Ideal form demonstrated excellent test-retest stability, and reliability of its Actual and Preferred forms seems to be adequate. ISM in its Actual form also demonstrated a capacity to differentiate between schools. The items in ISM generally correlate weakly (if not negatively) with each other which suggests that ISM is capable of capturing something of the rich diversity of features which characterise a school. Factor analysis enabled the items of ISM to be clustered into six groups, and, following definition of the various ISM items, these clusters were labelled.

3.4 Summary

Three sets of questionnaires were developed or adopted and validated thoroughly for the study. The samples were not selected randomly. Rather, the teachers who took part in the study are representative of the Tasmanian educational enterprise in many respects - including the nature of the school in which they teach, their gender balance, their status and experience and so on. Similarly, the large number of students who made up the sample were drawn from a wide variety of schools, subject areas and so on. The only characteristic of the samples to cause some concern in terms of possible poor representativeness was the gender balance in the student sample. However, as indicated above, a simple statistical test allayed those doubts considerably. The researcher could have sought the involvement of other teachers and students who were not recruited to the project by the methods outlined above in order to enlarge the samples even further or to eliminate any perceived unrepresentativeness, however this course of action was judged to be unnecessary. The questionnaire returns were hand scored and entered into computer spreadsheet files by the researcher with some help from two assistants. Confidentiality of respondents and other such ethical concerns were addressed. Parametric statistical techniques were used to analyse the data.

Chapter 4

Results and Discussion Concerning Relationships Between Classroom Environment and School Climate

This chapter reports the results of the investigation of the first research question. These results are exhibited in a number of tables throughout the chapter and they are described in writing as well. Relevant descriptive statistics are tabulated in the first instance. Significant correlations between the two sets of scales are then reported. Multiple regression analyses were performed and the Beta weights and R^2 values generated by the process are presented. The chapter concludes with a discussion of the major findings concerning the research question.

Research Question 1:
What significant relationships exist between classroom environment as perceived by students and school climate as perceived by their teachers?

To address this question students' perceptions of their classroom environment (taken as a psychosocial phenomenon) were assessed by having a large sample complete *My Class Environment* (MCE)-Actual. This instrument was adapted from pre-existing instruments for the current study and addresses six scales which seemed to be especially pertinent, namely: Cohesiveness, Satisfaction, Speed, Difficulty, Formality and Democracy. The instrument and its development and validation were described in detail in Chapter 3.

Teachers' perceptions of their school's climate (again viewed as a psychosocial phenomenon) were assessed through the administration of the *School Level Environment Questionnaire* (SLEQ)-Actual. This instrument assesses eight aspects of a school's climate, namely: Student Support, Affiliation, Professional Interest, Staff Freedom, Participatory Decision-Making, Innovation, Resource Adequacy and Work Pressure. The instrument and these scales were described in Chapter 3, and its validation for the purposes of this study was overviewed also in that chapter.

As indicated earlier, to address the various research questions, the samples were reduced to 162 teachers and classes, with only those teachers who completed the SLEQ and *Images of Schools through Metaphor* (ISM) instruments and who had a class of students complete MCE being included. Where a split of data between Primary (Grades 5 - 6) and Secondary (Grades 7 - 8) levels was made the samples consisted of

86 teachers and classes and 76 teachers and classes respectively. Notwithstanding this approach, the descriptive statistics provided below include also those applicable to the larger samples.

The reader is reminded that, as mentioned in the introductory chapter, the class mean of student perceptions of the classroom environment, on the one hand, and the perceptions of school held by individual teachers, on the other, are the units of analysis employed in addressing the research question.

4.1 Descriptive Statistics

Tables 4.1.1 and 4.1.2 present mean scores and standard deviations for each scale of MCE and SLEQ respectively.

Table 4.1.1

MCE Scales: Means and Standard Deviations

Scales	Whole Sample Grades 5 - 8 (Sample N = 177 Classes)		(Sub-Sample N = 162 Classes)		Primary Grades 5 - 6 (Sample N = 87 Classes)		(Sub-Sample N 86 Classes)		Secondary Grades 7 - 8 (Sample N= 90 Classes)		(Sub-Sample N = 76 Classes)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Cohesiveness	8.98	1.59	9.01	1.60	8.93	1.59	8.81	1.53	9.08	1.60	9.24	1.65
Satisfaction	12.02	1.70	12.06	1.72	12.59	1.28	12.53	1.28	11.43	1.93	11.54	1.99
Speed (ex item 15)	6.77	1.16	6.73	1.17	6.77	1.09	6.80	1.08	6.73	1.27	6.65	1.26
Difficulty	6.83	.95	6.83	.95	6.83	.92	6.91	.91	6.79	1.00	6.73	1.00
Formality (ex item 29)	10.20	.88	10.19	.91	10.23	.94	10.25	.96	10.15	81	10.13	.84
Democracy	11.32	1.37	11.39	1.39	11.73	1.45	11.75	1.11	10.84	1.50	10.99	1.56

(Minimum and maximum mean scores possible for each scale are 5 and 15 except for Speed and Formality where these limits are 4 and 12)

Table 4.1.2

SLEQ Scales: Means and Standard Deviations

	Whole Sample Grades 5 - 8 (Sample N = 288 teachers)		(Sub-sample N = 162 teachers)		Primary Grades 5 - 6 (Sample N = 151 teachers)		(Sub-sample N = 86 teachers)		Secondary Grades 7 - 8 (Sample N = 137 teachers)		(Sub-sample N = 76 teachers)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Student Support	27.85	4.99	28.26	4.95	28.71	4.59	28.27	4.79	27.06	5.32	28.25	5.16
Affiliation	29.00	4.14	29.08	4.19	29.45	4.10	29.08	4.17	28.63	4.15	29.08	4.25
Professional Interest	26.65	4.41	26.41	4.43	27.82	3.96	27.19	3.96	25.45	4.57	25.54	4.78
Staff Freedom	24.87	3.61	24.52	3.90	25.46	3.71	24.86	4.06	24.23	3.42	24.13	3.69
Participatory Decision-Making	24.37	4.73	23.55	4.66	24.74	4.95	23.65	4.70	23.94	4.57	23.43	4.64
Innovation	24.08	4.58	23.57	4.51	25.52	4.29	24.63	4.16	22.54	4.49	22.38	4.63
Resource Adequacy (ex item 39)	20.52	3.60	20.57	3.67	21.39	3.70	21.27	3.38	19.61	3.50	19.78	3.85
Work Pressure	26.73	4.44	26.94	4.41	26.13	4.52	26.49	4.57	27.44	4.29	27.46	4.18

(Minimum and maximum mean scores possible for each scale are 7 and 35 except for Resource Adequacy where these limits are 6 and 30)

Inspection of the tables suggests at least five generalisations:

1. The means and standard deviations for the larger samples and the smaller sub-samples are quite similar in magnitude.

2. Students in the samples do not judge their classrooms to be very Cohesive or Formal, nor do they find the coverage of the work very Speedy nor the work itself very Difficult.

Further, the students are not highly critical of the extent to which they are Satisfied with the class nor of the level of Democracy exhibited within it.

3. Teachers are highly variable in their feelings about their school's work climate, and overall the mean scores on each climate scale are quite moderate.

4. Students at Primary and Secondary levels appear to regard their classroom environments in a similar light.

In order to test this latter observation it was decided to apply a two-tailed t-test for independent samples to the MCE data. This test probes the hypothesis that the difference between the means of the scales at the two levels of schooling is zero. In order that one can conclude that two sets of means are significantly different from zero, a relatively large t-value needs to be demonstrated - and the more stringent the prescribed significance level, the higher the t-value required. When the larger sample of 177 classrooms is taken into account a fairly small t-value of 1.55 ($p = .18$) is obtained. Similarly, when the data for the sub-sample of 162 classrooms are tested another small t-value of 1.43 ($p = .21$) is revealed. These results, therefore, support the fourth observation.

5. Teachers at Primary and Secondary levels appear to perceive the school climate in a somewhat different light. Again, a two-tailed t-test was applied to the data to test this observation. When the larger sample of 288 teachers is considered this observation is supported, since a moderately sized t-value of 2.83 ($p = .03$) is obtained. However, when the data relevant to the smaller sample of 162 teachers are examined the observation is not supported since a small t-value of 1.79 ($p = .12$) is obtained.

4.2 Correlations between Scales of MCE and Scales of SLEQ

Initially, the data obtained from the sub-sample of 162 teachers and classrooms were subjected to a simple correlation probe, first for the data as a whole and then for Primary Grades 5 - 6 and Secondary Grades 7 - 8 separately. Table 4.2 displays the results.

An indication of the probability of each correlation occurring as a result of chance is shown also. For convenience, only three ranges of probability levels are indicated: $p<.05$, $p<.01$ and $p<.0001$. This convention is repeated in succeeding sections and chapters.

The most obvious result portrayed in Table 4.2 is that relatively few statistically significant correlations between the scales of MCE on the one hand and the scales of SLEQ on the

Table 4.2
Statistically Significant Correlations between Scales of MCE and Scales of SLEQ

Scales of School Level Environment Questionnaire		Scales of My Class Environment					
		Coh.	Sat.	Speed	Diff.	Form.	Dem.
Student Support	Whole sample	.19*	.31***	-.27**	-.33***	-.21**	.16*
	Primary	-	.25*	-.39**	-.22*	-.29**	-
	Secondary	-	.39**	-	-.43***	-	-
Affiliation	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Professional Interest	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-.28*	-	-
Staff Freedom	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Participatory Decision-Making	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Innovation	Whole sample	-	-	-	-	-	.28**
	Primary	-	-	-	-	-	-
	Secondary	.30**	-	-	-.23*	-	.30**
Resource Adequacy	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-.24*	-	-
Work Pressure	Whole sample	-	-	-	-	-.20**	-
	Primary	-	-	-	-	-.26*	-
	Secondary	-	-	-	-	-	-

* p< .05, ** p< .01, *** p< .0001

other are revealed. This observation is strengthened by the knowledge that of the 48 correlations (six MCE scales by eight SLEQ scales), at each of whole sample, Primary and Secondary levels, two or three of them could be expected to be significant at the $p<.05$ level of confidence by chance alone (but proportionately fewer at more stringent confidence levels). There are exceptions to this overall pattern though. It is clear that Student Support correlates significantly with each of MCE's scales, and, following splitting of the data between the Primary and Secondary levels, it can be seen that Student Support correlates significantly with Satisfaction and Difficulty at both levels, and with Speed and Formality at the Primary level alone. The magnitude of these statistically significant correlations varies considerably - from .16 at $p<.05$ for the Student Support-Democracy association across the Grades 5 - 8 spectrum to -.43 at $p<.0001$ for the Student Support-Difficulty relationship at the Secondary Grade 7 - 8 level.

Other exceptions are concerned with relationships between Professional Interest and Difficulty (Secondary), Innovation and Cohesiveness (Secondary), Innovation and Difficulty (Secondary), Innovation and Democracy (whole sample and Secondary), Resource Adequacy and Difficulty (Secondary) and Work Pressure and Formality (whole sample and Primary).

Considered from the other perspective, the results indicate that each of the scales in MCE at the Grade 5 - 8 level is correlated significantly with Student Support, while Formality is associated at the $p<.01$ level with Work Pressure, and Democracy is associated with Innovation, also at that level of significance. Further, students' perceptions of Satisfaction, Speed, Difficulty and Formality at the Primary school level correlate significantly with at least one SLEQ scale, while Secondary students' perceptions of Cohesiveness, Satisfaction, Difficulty and Democracy correlate significantly (at either $p<.05$ or $p<.01$) with one or more of Student Support, Professional Interest, Innovation or Work Pressure.

4.3 R^2 Values and Beta Weights from Multiple Regression

The statistic R^2 is known as the coefficient of determination (StatView Manual, 1992) and is defined as the proportion of the dependent variable's variability that is explained or predicted by an independent variable, or, indeed, by a set of independent variables together.

The magnitude of R^2, when each of the scales of MCE was designated the dependent variable in turn and the eight scales of SLEQ were taken to be the set of independent

variables, was calculated through the multiple regression technique. The statistically significant R^2 values, for the sub-sample of 162 classes and teachers as a whole and as a result of splitting the data on a Primary-Secondary basis, are displayed in Table 4.3.1. The values range between .12 and .21 before the split of data is considered. These values mean that 12 percent of variance in students' sense of Speed can be explained or predicted by teachers' perceptions of the set of eight independent variables, while a rather larger 21 percent of variance (statistically significant at the $p<.0001$ level of confidence) in student sense of Satisfaction can be explained or predicted by teachers' scores on the eight SLEQ scales.

Table 4.3.1

Statistically Significant R^2 Values from Multiple Regression
Dependent Variables: Scales of MCE
Independent Variables: Scales of SLEQ

Scale of MCE	Whole Sample (Grades 5 - 8)	Primary (Grades 5 - 6)	Secondary (Grades 7 - 8)
Cohesiveness	-	-	.21*
Satisfaction	.21***	.19*	.24*
Speed	.12*	.22*	-
Difficulty	.14**	-	.25*
Formality	-	-	-
Democracy	.14**	-	-

* p< .05, ** p< .01, *** p< .001

When the data are split on the Primary-Secondary basis similar ranges of R^2 values are revealed - from .19 to .22 (significant at the $p<.05$ level of confidence) at the Primary level, and from .21 to .25 (again $p<.05$) at the Secondary level. However, it will be noted that variance in students' perceptions of Speed in Primary classrooms (.22) is that which is most fully predicted by teachers' scores on the SLEQ scales, whereas at the Secondary level teachers' perceptions on the total of the eight school climate scales predict variance between 21 and 25 percent in each of student sense of Cohesiveness, Satisfaction and Difficulty.

The multiple regression technique was used also to discover which scales of SLEQ, as independent variables, are statistically significant in the regression equation when each

of the scales of MCE in which statistically significant proportions of variance are predicted by the set of ISM items is designated the dependent variable in turn. The relevant statistic is known as the Beta weight, which is the regression coefficient standardised as if all the independent variables had means of zero and variance of one (StatView Manual, 1992). The size of the Beta weight can be useful in suggesting which of the independent variables in the regression are important in predicting or explaining values of the dependent variable; similarly, the sign associated with the Beta weight indicates the direction in which the dependent and independent variables are associated.

Statistically significant Beta weights are shown in Table 4.3.2 and should be read independently of each other. Thus, when considering the classroom environment scale known as Satisfaction, for example, the school climate scale called Student Support is significant ($p<.0001$) in its regression equation. What is more, the relationship is a positive one. At the same time though, using the same dependent variable as an example, Affiliation is also significant ($p<.01$) in the regression equation but this time the relationship is in a negative direction.

The Beta weights for the sample as a whole are shown in the first column of Table 4.3.2, under the heading "Grades 5 - 8". It will be noted that five of the SLEQ scales, namely, Student Support, Affiliation, Participatory Decision-Making, Innovation and Work Pressure, are statistically significant in the regression equations for at least one of the MCE scales. Further, it is clear that Student Support is significant in the regression equation for each of the MCE scales whose variance is explained to a statistically significant extent by the set of SLEQ scales, and that the relationship is in a positive direction with Satisfaction and Democracy, but in a negative direction with Speed and Difficulty.

When focusing upon the four qualifying MCE scales it can be seen that Student Support is statistically significant in the regression equations for each of them, while the equation for Satisfaction contains four scales of SLEQ which are statistically significant, and the regression equation for Democracy contains two scales of SLEQ which are statistically significant.

The second and third columns of Table 4.3.2 present Beta weight values following a split of the data according to whether the focus is at the Primary (Grades 5 - 6) or Secondary (Grades 7 - 8) level. At the Primary level, Student Support, alone, is significant in the regression equations for any of the qualifying MCE scales. At the

Secondary level, Student Support proves to be statistically significant in the regression equations of three of the MCE scales, while Innovation proves to be the same in the regression equation for Cohesiveness.

Table 4.3.2

Statistically Significant Beta Weights from Multiple Regression Dependent Variables: Scales of MCE in which variance is predicted to a statistically significant extent by the set of SLEQ scales Independent Variables: Scales of SLEQ

Scale of MCE	Beta Weights from Multiple Regression		
	Whole Sample Grades 5 - 8	Primary Grades 5 - 6	Secondary Grades 7 - 8
Cohesiveness	Not applicable	Not applicable	Student Support .26* Innovation .44*
Satisfaction	Student Support .37*** Affiliation -.31** Participatory Decision-Making -.22* Innovation .31**	Student Support .33**	Student Support .39**
Speed	Student Support -.28**	Student Support -.43**	Not applicable
Difficulty	Student Support -.35***	Not applicable	Student Support -.36*
Formality	Not applicable	Not applicable	Not applicable
Democracy	Student Support .21* Innovation .42**	Not applicable	Not applicable

* p< .05, ** p< .01, *** p< .0001

4.4 Discussion

Overall, teachers' perceptions of the eight school climate scales embodied in SLEQ, individually and as a set, leave unexplained much of the variance in students' perceptions of the six classroom environment scales addressed in MCE, whether the focus be on the Primary or Secondary level separately or on the Grades 5 - 8 range.

However, it is clear that the school climate scale Student Support correlates significantly with every classroom environment scale at the whole sample level, with

four such scales at the Primary level and with two at the Secondary level. In some instances these correlations are so strong as to be significant at the $p<.0001$ level of confidence. Furthermore, the multiple regression process points to Student Support being an important predictor of variance in four classroom environment scales at the whole sample level and frequently at the Primary and/or Secondary levels as a consequence of splitting the data. The magnitude of Student Support in the multiple regression equations is frequently large enough to satisfy the $p< .0001$ acceptance criterion.

We know that schools tend to be loosely-coupled in a variety of respects (Weick, 1976), with a consequence being that teachers' behaviours in their classrooms are often beyond the direct influence of supervisors or colleagues. While teachers may feel frustrated by, say, an inability to influence outcomes at the school or system levels, they may be able to keep such frustrations, consciously or unconsciously, outside the realm of their classroom "enclave". However, teachers cannot keep the school's students out of their classrooms. An examination of the items relevant to Student Support in SLEQ, which refer to the extent to which teachers perceive good rapport with students and the extent to which students behave in a responsible self-disciplined manner generally, suggests that it would be surprising if teachers responded in a manner which was independent of the behaviour of students and their relationships with them in the classroom.

It is pertinent to note that the Tasmanian Department of Education and The Arts and a variety of professional groups within the state have promoted actively a 'Supportive School Environment Program' in recent years. The results presented above suggest that such a thrust is well founded, although no claims are made here about the details of the program. It seems that if teachers feel that their efforts within the school generally are not being frustrated by uncooperative and unwilling students then such feelings are likely to spill over into the classroom environment and, hence, into the quality of student learning. While there are some differences between Primary and Secondary classrooms in terms of which environmental scales are most related to teachers' perceptions of Student Support, such differences are insufficient to warrant any difference in emphasis being given to Student Support as a priority area for enhancement at both levels of schooling.

Turning to Affiliation, it can be seen that its Beta weight value in the regression equation when student sense of Satisfaction is the dependent variable are not inconsiderable. An interesting aspect here, though, is the way in which Affiliation

predicts variance in student Satisfaction in a negative direction. What this means is that if teachers feel they are able to obtain considerable assistance, advice and encouragement from their colleagues and are made to feel well accepted by them, then some of the variance in the opposite direction of the extent to which students find their class work enjoyable is predicted. This may be due to some teachers actually aligning their interests and efforts with colleagues (in the staffroom, the school generally, and perhaps even in the classroom if it is "open" in any way) at the expense of such interests and efforts with students.

This possibility may not be unlike one of Reddin's findings concerning the application of the well known leadership grid theory (see, for example, Owens, 1987, pp. 147-149). Reddin indicated that one leadership style pays close attention to the leader's relationships with subordinates, particularly in terms of mutual trust, respect for their ideas and consideration of their feelings, and, at the same time, seems to give little emphasis to directing energy toward achieving organisational goals. This style may be appropriate when the leader is motivated largely by a desire to develop his or her staff to their full potential, in the expectation that in the long term organisational excellence will be achieved. On the other hand though, this style is likely to be inappropriate if it is underpinned by a desire to build a "country club" atmosphere within which harmony or bonhomie are valued for their own sake. In the school setting, if students are frustrated regularly by their inability to see a teacher before school starts in the morning because he or she is too involved in a game of cards or if classes do not begin promptly because of a teacher's tardiness due to an exhausting game of table tennis at lunch time it is not difficult to imagine that high levels of Affiliation may get in the way of classroom matters and student learning.

The lack of a demonstrated relationship between teachers' perceptions of Staff Freedom and the nature of the classroom environment as reported by students is difficult to explain. A number of items concerning Staff Freedom in the questionnaire are related directly to the teachers' behaviour in the classroom and it might be expected that there would be some interaction between them and students' perceptions of, say, Democracy.

Similarly, the relative lack of association between teachers' perceptions of Participatory Decision-Making and students' perceptions of their classroom environment, especially in the Democracy scale, is difficult to explain. The only statistically significant association revealed is Participatory Decision-Making's ability to predict some amount of variance in students' view of Satisfaction, but the association is a negative one. An

explanation for this result could be that some teachers may become so involved in decision-making, especially concerning matters which are somewhat remote from student affairs, that students begin to see themselves and their needs in the classroom being overlooked (extending perhaps to a belief that they are abandoned regularly to a relief teacher).

Teachers' sense of Innovation, that is the extent to which they see the school as being in favour of planned change and experimentation and fosters individualisation, is associated with a number of classroom environment scales, especially at the Secondary level, and seems to be a fairly strong predictor of variance in Cohesiveness, again especially at the Secondary level. Tasmanian schools have adopted to a greater or lesser extent a wide range of innovations in recent times. Some of these, such as Program Budgeting, may be of little interest to students, but others, such as the school's new discipline policy and its adoption of criterion based assessment procedures, may be of vital interest to them. If teachers discuss such innovations with their students and try to engender a sense of ownership of the change among them, it would not be unreasonable for them to perceive aspects such as Cohesiveness and Democracy in the classroom in a good light. Given the ages of the students concerned, one would expect such processes to occur at the Secondary level if not at the Primary level.

Economic recession, a tendency toward system level "managerialism", the aftermath of CRESAP (an efficiency-rationalisation report on education commissioned by the Tasmanian Government), higher levels of student retention at school, a move toward criterion based assessment and the like have meant that Tasmanian schools are in the midst of an era of limited resourcing. Certainly, the data generated in this study indicate that teachers regard their schools as being under-resourced in terms of facilities, materials and equipment which are the focus of the Resource Adequacy scale of SLEQ. Nevertheless, it is clear that these perceptions are not reflected in their students' views of their classroom environment. This finding may not be unlike those which are revealed sometimes when effects of class size on student learning are investigated (see for example, Maricopa County School Superintendent's Office, undated). Just as it seems that student learning may be relatively unaffected by increase in class size (once the class gets above a certain "threshold" size) so too it is possible that teachers are able to accommodate a diminution in resources within certain limits through, say, sharing with neighbouring schools or making use of facilities such as those provided by lending libraries in the wider community, in a way that students do not feel the classroom environment has been compromised.

When teachers perceive considerable Work Pressure it seems that their classrooms are seen by students to be somewhat less Formal, especially at the Primary level. This may suggest that as pressure builds, teachers typically are able to resist a temptation to become more custodial and more dependent upon class rules. On the other hand though, this result could indicate that some teachers, unwittingly perhaps, allow students greater liberty while they get on with pressing matters which may or may not be related closely to the classroom.

In conclusion at this point it can be argued with some confidence that students' perceptions of their classroom environment are associated in a number of important ways with their teachers' views of the work climate at the school level. These associations may not be as numerous or as strong as one might hypothesise, nor are the associations usually different in great magnitude between Primary and Secondary level of schooling, but it is clear that the results indicate that school leaders and others ought consider the work climate of teachers (especially the Student Supportiveness aspect) to be a set of variables which are likely to bear important relationships with classroom environments as perceived by students and hence with a variety of student learning outcomes.

Chapter 5

Results and Discussion Concerning Relationships between Classroom Environment and Images of School

This chapter is concerned primarily with the second research question, namely:

Research Question 2:
What significant relationships exist between students' perceptions of their classroom environment and their teachers' images of the school?

The question was answered through the administration of *My Class Environment* (MCE)-Actual and *Images of Schools through Metaphor* (ISM)-Actual. Again it is imperative that the reader appreciates that the units or levels of analysis adopted in this chapter are the class means of student scores on the classroom environment scales and the scores of individual teachers on the various ISM items.

The chapter opens with a display of descriptive statistics generated by the administration of ISM. Descriptive statistics which overview the data generated by MCE were provided in Chapter 4 and are not reproduced here.

Then follows a presentation of statistically significant correlations between scales of *My Class Environment* (MCE) and items of *Images of Schools through Metaphor* (ISM). Statistically significant correlations between scales of MCE and clusters derived from factor analysis of ISM data are then presented. Then comes a presentation of statistically significant R^2 values and Beta weights from multiple regression when MCE scales are taken to be the dependent variables and the items of ISM, and then clusters from factor analysis of ISM data, in turn, are taken to be the independent variables. The chapter concludes with a discussion of the results.

5.1 Descriptive Statistics

Table 5.1 displays the descriptive statistics for ISM in the same manner as that adopted in Chapter 4. Thus data from two sets of samples are shown. The smaller sub-samples of 162 classes and teachers were used to answer the research question itself, but the data generated by administration of ISM to the larger samples of 283 teachers are not wasted, and are shown here for the sake of completeness. Further, the data were split on a Primary-Secondary basis and the means and standard deviations calculated following such splitting are shown also in Table 5.1.

Table 5.1

Images of Schools through Metaphor: Means and Standard Deviations

	Whole Sample Grades 5-8 (Sample N = 283)		(Sub-Sample N = 162)		Primary Grades 5-6 (Sample N = 145)		(Sub-Sample N = 86)		Secondary Grades 7-8 (Sample N = 138)		(Sub-Sample N = 76)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Culture	3.75	.90	3.77	.88	3.84	.83	3.85	.81	3.66	.95	3.68	.96
Herd	2.72	1.08	2.72	1.09	2.17	1.00	2.17	1.00	2.38	1.16	2.38	1.18
Family	3.94	.94	3.88	1.00	4.08	.88	3.94	.95	3.78	.98	3.80	1.05
Forum	3.43	.87	3.37	.88	3.56	.84	3.44	.84	3.30	.88	3.30	.94
Exhibition	3.03	1.02	3.03	1.05	3.17	1.02	3.19	1.02	2.89	1.01	2.84	1.06
Orchestra	3.13	.99	3.12	.98	3.29	.92	3.28	.86	2.97	1.04	2.93	1.08
Hospital	2.42	1.04	2.38	1.03	2.41	1.09	2.41	1.09	2.42	1.00	2.36	.96
Creche	2.46	1.22	2.36	1.22	2.22	1.16	2.22	1.18	2.70	1.23	2.51	1.25
Museum	2.50	1.09	2.53	1.11	2.49	1.08	2.55	1.08	2.50	1.10	2.51	1.15
Garden	3.28	1.09	3.29	1.09	3.44	1.05	3.38	1.08	3.12	1.10	3.18	1.10
Mental straight-jacket	1.66	.93	1.70	.95	1.56	.91	1.65	.98	1.76	.94	1.75	.91
Shopping mall	2.41	1.08	2.39	1.07	2.50	1.07	2.48	1.04	2.32	1.08	2.29	1.09
Beehive	3.50	1.07	3.52	1.07	3.58	1.06	3.61	1.08	3.42	1.08	3.42	1.06
Military camp	1.58	.73	1.55	.70	1.46	.66	1.45	.66	1.71	.78	1.66	.72
Ghetto	1.47	.78	1.45	.77	1.32	.62	1.33	.62	1.63	.89	1.59	.88
Artist's palette	3.25	.99	3.28	.98	3.35	.96	3.35	.93	3.15	1.01	3.20	1.03
Machine	2.58	1.07	2.61	1.07	2.63	1.08	2.66	1.08	2.53	1.07	2.54	1.06
Expedition	3.27	.99	3.25	.91	3.51	.96	3.40	.89	3.01	.96	3.08	.92
Team	4.13	.93	4.06	1.00	4.31	.89	4.21	1.02	3.94	.94	3.88	.95
Traffic jam	2.41	1.09	2.47	1.10	2.16	1.01	2.27	1.02	2.66	1.12	2.70	1.14
Negotiating area	3.80	.84	3.73	.83	3.93	.81	3.81	.83	3.67	.85	3.63	.81
Prison	1.51	.74	1.50	.68	1.33	.58	1.40	.62	1.69	.84	1.62	.73
Olympic Games	2.74	1.09	2.72	1.07	2.85	1.12	2.86	1.11	2.63	1.04	2.55	1.01
Living organism	4.00	.81	4.04	.83	3.99	.77	4.02	.80	4.01	.86	4.05	.86
Theatre	3.41	.91	3.43	.90	3.33	.96	3.30	.96	3.50	.85	3.57	.81
Labour ward	2.38	1.09	2.30	1.06	2.31	1.14	2.20	1.06	2.46	1.02	2.4	1.06

(Minimum and maximum mean scores possible for each item are 1 and 5 respectively)

It will be recalled that two-tailed t-tests can be employed to test the hypothesis that the difference between the means of two samples is zero. When the larger sample and the smaller sub-sample are compared across the Grades 5 - 8 range using this device a low t-value of 1.44 is obtained. The probability of this occurring by chance is .16, and hence it can be concluded that any difference between the two means is statistically insignificant. The same can be concluded when the larger sample means are compared with the smaller sub-sample means at the Primary and Secondary levels: the t-values being 1.04 ($p = .31$) and 1.33 ($p = .20$) respectively.

Inspection of the descriptive statistics indicates also that the teachers in the samples generally perceive their schools to be Cultures, Families, Teams, Negotiating areas and Living organisms. On the other hand, typically they tend not to regard their schools as Mental straight-jackets, Military camps, Ghettos or Prisons. The magnitude of the standard deviations indicates that variation in teachers' views of their school in general is not extreme, however the standard deviations are usually larger at the Secondary than at the Primary level, indicating somewhat greater variation among teachers' views at the Secondary level.

Further inspection suggests, too, that teachers at the Primary level typically perceive their school in much the same light, in terms of the items of ISM, as do teachers at the Secondary level. Two-tailed t-tests comparing the means of the ISM scores for the Primary and Secondary levels for the sample of 283 teachers and the sub-sample of 162 teachers supports this observation since very small t-values of .69 ($p = .50$) and .85 ($p = 0.44$) respectively are generated.

5.2 Correlations between Scales of MCE and Items of ISM

Statistically significant correlations between scales of MCE and items of ISM are displayed in Table 5.2. The caveat offered on page 95 is repeated here: By chance alone, some eight (5%) of the 156 correlations at each level of analysis can be expected to be significant at $p=.05$ and proportionately fewer at the other levels of confidence. Observing this table from the direction of the items of ISM initially, it can be seen that 11 of the 26 items correlate significantly with at least one scale of MCE when the Grade 5 - 8 spectrum is examined, but a further six items are revealed as bearing significant relationships with at least one MCE scale when the Primary-Secondary split of data is exercised. No single item of ISM correlates significantly with all six MCE scales, but two (school as Family and as Olympic Games) do so with four of those scales.

Generally, the confidence level of the correlations is quite modest ($p<.05$) but some correlations at the $p<.01$ level can be detected.

Table 5.2

Statistically Significant Correlations between Scales of MCE and Items of ISM

Items of Images of Schools through Metaphor		Scales of My Class Environment					
		Coh.	Sat.	Speed	Diff.	Form.	Dem.
Culture	Whole sample	-	-	-	-.17*	-	-
	Primary	-	-	-	-	-.28**	-
	Secondary	-	-	-	-	-	-
Herd	Whole sample	-	-	.20*	-	-	-
	Primary		-	-	-	.24*	-
	Secondary	-.31**	-	-	-	-	-
Family	Whole sample	.27**	.18*	-.18*	-	-	.21**
	Primary	-	.22*	-.31**	-	-	.39**
	Secondary	.39**	-	-	-	-	-
Forum	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Exhibition	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Orchestra	Whole sample	-	-	-.16*	-	-	-
	Primary	-	-	-.33**	-	-	-
	Secondary	-	-	-	-	-	-
Hospital	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Creche	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-

Table 5.2 Continued

		Coh.	Sat.	Speed	Diff.	Form.	Dem.
Museum	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Garden	Whole sample	-	-	-	-	-	.17*
	Primary	-	-	-	-	-	-
	Secondary	.33**	-	-	-	-	-
Mental straight-jacket	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	.22*	-
	Secondary	-.30**	-	-	-	-	-
Shopping mall	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Beehive	Whole sample	-	.18*	-.21**	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-.27*	-	-	-
Military camp	Whole sample	-	-	.19*	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-.34**		.31**	-	-	.27*
Ghetto	Whole sample	-	-.20*	.19*	-	-	-
	Primary	-	-	.27*	-	-	-
	Secondary		-.28*	-	-	-	-
Artist's palette	Whole sample	-	-	-	-	-	-
	Primary			-.25*	-	-	.27*
	Secondary	-	-	-	-	-	-
Machine	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-.28*	-	-	-	-	-
Expedition	Whole sample	-	.18*	-.18*	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-

Table 5.2 Continued

		Coh.	Sat.	Speed	Diff.	Form.	Dem.
Team	Whole sample	-	-	-	-	-	.17*
	Primary	-	-	-.26*	-	-	.24*
	Secondary	.30**	-	-	-	-	-
Traffic jam	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Negotiating area	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	.31**	-
Prison	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-.25*	-	-	-	-	-
Olympic Games	Whole sample	.19*	.23**	-	-.28**	-	.22**
	Primary	-	-	-	-.25*	-	-
	Secondary	.39**	.25*	-	-.34**	-	-
Living organism	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Theatre	Whole sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Labour ward	Whole sample	-	-	-	-	-	-
	Primary	.26*	-	-	-	-	-
	Secondary	-	-	-	-	-	-

* p< .05, ** p< .01, *** p< .0001

When Table 5.2 is viewed from the perspective of the MCE scales it can be noted that all scales of MCE except Formality (which does not correlate with even one item of ISM) correlate significantly (usually, but not exclusively, at the p<.05 level of confidence) with at least two ISM items (rising to seven in the case of Speed) when the Grade 5 - 8 continuum is the focus. When the Primary - Secondary split of data is invoked, though, it can be seen that Formality correlates with three ISM items at the Primary level and with one at the Secondary level. Further, the split points to

Cohesiveness, Speed and Democracy each being correlated with a number of ISM items primarily at the Secondary level.

5.3 Correlations between Scales of MCE and Clusters from ISM

To gain a more parsimonious picture of the relationships between students' perceptions of classroom environment and their teachers' images of the school, the data generated by ISM were factor analysed. The outcomes of this process were discussed in Chapter 3. At this point it is sufficient to restate the labels which were attached to the six clusters and to indicate the various items of ISM which allocated themselves to each of these clusters:

Cluster 1	**Cooperation**	Family Forum Artist's palette Team Negotiating area
Cluster 2	**Suppression**	Mental straight-jacket Military camp Ghetto Prison
Cluster 3	**Constrained Activity**	Beehive Traffic jam Living organism Theatre Olympic Games
Cluster 4	**Celebration**	Culture Exhibition Orchestra Garden Expedition Olympic Games Forum
Cluster 5	**Basic Needs**	Hospital Creche Shopping mall Labour ward Traffic jam
Cluster 6	**Mechanistic**	Museum Machine Herd

In order to conduct the analyses concerning the correlation and predictive nature of ISM data reported in this and the following sections the mean scores from ISM for each cluster were calculated. For example, the mean scores for Herd, Museum and Machine

obtained from the sub-sample of 162 teachers were summed and then divided by three in order to obtain a mean score for cluster 6 (Mechanistic). These six means were correlated then against the various MCE scales. Table 5.3 displays the statistically significant results, for the whole samples and as a consequence of a Primary-Secondary split in the data, generated by this process.

Table 5.3

Statistically Significant Correlations between Six Scales of MCE and Six Factors from ISM

Scales of MCE (Class means as unit of analysis)		Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
		(Individual teacher's scores as unit of analysis)					
Cohesiveness	Whole Sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Satisfaction	Whole Sample	-	-.19*	-	.23**	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-.24*	-	.28*	-	-
Speed	Whole Sample	-.19*	.20**	-	-.18*	-	-
	Primary	-.33**	-	-	-.23*	-	-
	Secondary	-	.24*	-	-	-	-
Difficulty	Whole Sample	-	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-.28*	-	.23*
Formality	Whole Sample	-	-	-	-	.22*	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Democracy	Whole Sample	.22**	-.18*	-	.20**	-	-
	Primary	.37**	-	-	-	-	-
	Secondary	-	-	-	-	-	-

* p<.05, **p<.01

Table 5.3 indicates that cluster 3 (Constrained Activity), alone, does not correlate significantly with any scale of MCE for the whole sample or at Primary or Secondary levels. At the other extreme, it can be seen that clusters 2 (Suppression) and 4 (Celebration) each correlates significantly (but always in the opposite direction) with three scales of MCE at the whole sample level, and with two and three respectively when the Primary-Secondary split occurs. It is worth noting, too, that following the Primary-Secondary split of data, clusters 1 (Cooperation) and 5 (Basic Needs) correlate significantly with scales of MCE at the Primary level alone, while clusters 2

(Suppression) and 6 (Mechanistic) correlate significantly with scales of MCE at the Secondary level alone. Cluster 4 (Celebration) is the only one to correlate significantly with one or more scales of MCE at both Primary and Secondary levels.

From the point of view of the scales of MCE, it can be seen that Cohesiveness does not correlate significantly with any of the clusters, while Speed correlates significantly with four of them at the whole sample level or at one or other of the Primary or Secondary levels. Similarly, Satisfaction and Democracy correlate significantly at one level or another with two and three clusters respectively.

5.4 R^2 Values and Beta Weights from Multiple Regression: Scales of MCE and Items of ISM

The meaning and significance of the R^2 and Beta weight values were overviewed in the previous chapter, and hence there is no need to repeat those comments here. When the 26 ISM items are taken as the independent variables together, R^2 values large enough to be of statistical significance ($p<.05$) are revealed in only three instances. These are displayed in Table 5.4.1.

Table 5.4.1

Statistically Significant R^2 Values from Multiple Regression
Dependent Variables: Scales of MCE
Independent Variables: Items from ISM

Scale of MCE	Whole Sample (Grades 5 - 8)	Primary (Grades 5 - 6)	Secondary (Grades 7 - 8)
Cohesiveness	-	-	.52*
Satisfaction	-	-	-
Speed	.25*	-	-
Difficulty	-	-	-
Formality	-	-	-
Democracy	.26*	-	-

* $p< .05$

Focusing on the Beta weights from multiple regression shown in Table 5.4.2 for the entire Grades 5 - 8 samples, it can be seen that 11 of ISM's 26 items prove to be statistically significant in the regression equations when each of the two relevant scales

of MCE, in turn, is designated as the dependent variable. Each of these 11 items is significant in either the regression equation for Speed or Democracy and not both.

Table 5.4.2

Statistically Significant Beta Weights from Multiple Regression Dependent Variables: Scales of MCE in which variance is predicted to a statistically significant extent by the set of ISM items Independent Variables: Items of ISM

Scales of MCE	Beta Weights from Multiple Regression			
	Whole Sample Grades 5 - 8		Primary Grades 5 - 6	Secondary Grades 7 - 8
Cohesiveness	Not applicable		Not applicable	Olympic Games .51** Theatre -.28*
Satisfaction	Not applicable		Not applicable	Not applicable
Speed	Culture Herd Creche Ghetto Expedition	-.19* .21* -.31** .29** -.23*	Not applicable	Not applicable
Difficulty	Not applicable		Not applicable	Not applicable
Formality	Not applicable		Not applicable	Not applicable
Democracy	Creche Museum Military camp Prison Olympic Games Theatre	.21* -.20* -.23* .27* .24** -.19*	Not applicable	Not applicable

* p< .05, **p< .01

When the Primary - Secondary split of data is exercised it can be seen that just school as Olympic Games (in a positive direction) and school as Theatre (in a negative direction) are significant in the regression equation for Cohesiveness at the Secondary level.

5.5 R^2 Values and Beta Weights from Multiple Regression: Scales of MCE and Clusters from ISM

Multiple regression analyses with the clusters of ISM items as independent variables and, in their turn, the scales of MCE as the dependent variables were conducted in order to obtain R^2 and Beta weight values. Table 5.5.1 displays the statistically significant R^2 values.

Table 5.5.1

Statistically Significant R^2 Values from Multiple Regression
Dependent Variables: Scales of MCE
Independent Variables: Clusters of Items from ISM

Scale of MCE	Whole Sample (Grades 5 - 8)	Primary (Grades 5 - 6)	Secondary (Grades 7 - 8)
Cohesiveness	-	-	.22**
Satisfaction	.08*	-	-
Speed	.08*	-	-
Difficulty	-	-	-
Formality	-	-	-
Democracy	. -	.19*	-

* p< .05, ** p< .01

Table 5.5.1 reveals that the six clusters together explain statistically significant proportions of variance in Satisfaction and Speed (both at the Grades 5 - 8 level), Cohesiveness (at the Grades 7 - 8 level) and Democracy (at the Grades 5 - 6 level).

An examination of Beta weights shown in Table 5.5.2 indicates that cluster 4 (Celebration) alone is statistically significant in an MCE scale's regression equation at the whole sample level (with Satisfaction, where a Beta weight of .24 is revealed). Further, cluster 1's (Cooperation's) importance in the regression equation for Democracy at the Primary level (Beta weight .48, p<.01) is suggested.

Table 5.5.2

Statistically Significant Beta Weights from Multiple Regression
Dependent Variables: Scales of MCE in which variance is predicted to a statistically significant extent by the set of ISM items
Independent Variables: Clusters from ISM

Scales of MCE	Beta Weights from Multiple Regression				
	Whole Sample Grades 5 - 8		Primary Grades 5 - 6		Secondary Grades 7 - 8
Cohesiveness	Not applicable		Not applicable		-
Satisfaction	Cluster 4 (Celebration)	.24*	Not applicable		Not applicable
Speed	-		Not applicable		Not applicable
Difficulty	Not applicable		Not applicable		Not applicable
Formality	Not applicable		Not applicable		Not applicable
Democracy	Not applicable		Cluster 1 (Cooperation)	.48**	Not applicable

* p< .05, **p< .01

5.6 Discussion

The results presented above indicate that every item from ISM except school as Forum, as Exhibition, as Hospital, as Shopping mall, as Traffic jam and as Living organism is associated through correlation and/or Beta weight to a statistically significant extent with at least one classroom environment scale, and when an item from ISM is related to more than one environment scale the pattern is always the same, except for what appears to be one single instance. Putting this exception to one side for a moment, the pattern is that where an item is associated (either in terms of simple correlations or Beta weights) with Cohesiveness, Satisfaction and/or Democracy such association is always in a positive or a negative direction with them and, at the same time, if there is an association with one or more of the other three environment scales, namely Speed, Difficulty and/or Formality, the association is in the opposite direction. Thus, for example, school as Family and school as Olympic Games are associated with Cohesiveness, Satisfaction and Democracy in a positive direction, and with Speed or Difficulty in a negative direction. School as Beehive and as Expedition reveal similar patterns. On the other hand though, school as Herd, as Mental straight-jacket, as

Military camp and as Ghetto, for example, relate negatively with Cohesiveness, Satisfaction and/or Democracy, but positively with Speed, Difficulty and/or Formality.

The single exception to this pattern seems to be school as Prison (which is correlated negatively with Cohesiveness but, as indicated by its Beta weight, positively with Democracy).

Similarly, when associations between classroom environment scales and clusters from factor analysis of ISM data are considered it can be seen that whenever clusters 1 (Cooperation) and 4 (Celebration) are involved such involvement is always in a positive direction with Satisfaction and/or Democracy and in a negative direction with Speed. In like manner, in the case of cluster 2 (Suppression), when it is involved in a relationship with one or more scales of MCE such involvement is in a negative direction with Satisfaction and/or Democracy and in a positive direction with Speed.

Clearly, there is much which is systematic between the items of ISM, between the scales of MCE, and between the items of ISM and the scales of MCE, which indicates that teachers probably think about their school in a patterned way, that students, likewise, think about their classrooms in a patterned way, and that the two instruments concerned enable a researcher to identify some of those patterns.

There is little doubt that the images of school which fall into cluster 1, that is those related to **cooperation**, are positive in that where teachers see their school in this light their students view the classroom environment in a positive light also.

It is apt to recall here some of the messages that are found in the literature concerning cooperative schools and cooperative classrooms. Slavin (1980), for example, was very supportive of Teams-Games-Tournament and other such structured and unstructured cooperative learning/teaching strategies. Not only do they seem to be more than adequate (in comparison with more traditional techniques) in facilitating learning of knowledge and skills, but they also appear to be superior in promoting affective outcomes such as liking for school, concern for others, racial tolerance and self esteem. Similarly, Johnson and Johnson (1989), in their book entitled *Leading the Cooperative School*, explained how cooperation, caring and committed relationships, joint goals, encouragement and accountability could be achieved through the establishment of collegial support groups, task forces and *ad hoc* decision-making groups. Two metaphors employed to good effect by Johnson and Johnson were school as Family and school as Team. Sergiovanni's (1992) advocacy of school as Community fits this

perspective too. The results presented in this chapter align closely with these sorts of prior contributions.

If it is true that families stick together it might be predicted that the longer a teacher has been at a particular school the more likely he or she is to view the school as a Family. A split of the data on the basis of the number of years a teacher has been at his or her current school supports such an hypothesis. The mean score for school as Family overall is 3.88 but teachers who have been at the school for less than four years generate a mean score of 3.68 on the item, while those who have been at the school for four years or more indicate a mean score of 4.09 on it. Perhaps those who have been in the school for a considerable amount of time become the "cultural priests" who teach others (enculturate them) that in this school we support each other, we give everybody a say, we stick together and so on. If this enculturation process is successful it would surprise if teachers left such learnings outside the classroom door.

It usually takes considerable time for an artist to produce a valued product - perhaps inspiration has to come to the fore, colours have to be mixed and applied, perhaps the artist has to wait for a certain pose or a particular light intensity, and perhaps time has to elapse before a coat can be applied upon another. If this is so it might be imagined that a teacher who saw the school as an Artist's palette may very well ensure that students are given plenty of time in the classroom to daydream, experiment, refine, start again and so on as they go about creating their knowledge of themselves and the world about them. If teachers see the integrity and worth of all their colleagues (read colours) in the school being respected they may very well carry a similar attitude into the classroom. If this is so one could easily imagine that students would perceive the classroom to be Democratic to the extent that everybody would have a say in what is done within it.

In Tasmania at least, there has not been a strong tradition of negotiating the formal curriculum or assessment of achievement between teachers and students in Secondary schools. The concept, however, is one being advocated in some quarters, and as teachers begin their experimentation with it perhaps they are doing so within a set of constraining rules concerning the processes and the products.

Turning to the cluster of images which were labelled as **suppression**, it is not difficult to remember details associated with the image painted below of aspects of school when this researcher began teaching (at the secondary level in the early 1960's in Sydney). Students responded to a siren and lined up on parade at the start of the day. Flanked by teachers (warders perhaps!) they were brought to attention by a senior master (never a

woman, even though some senior positions on staff were occupied by women), then put at ease and provided with information thought necessary for them to get through the day. Finally they were brought to attention again, instructed to turn to the right or left and to quick march, in step to accompanying military music, towards their classrooms. Prefects lined the route to be taken, and those students who talked were likely to find themselves on detention later in the day. At lunch time children were confined to the quadrangle, and teachers did yard duty by wandering the balcony which overlooked the quad. When an adult visitor came to a classroom students stood to attention. The roll was called twice each day and students were expected to say "Present, Sir". All students wore uniforms. Teachers, in the privacy of the staffroom usually, talked of the "chalkface" and the "trenches" and of the previous Principal who boasted that "No child, I repeat no child, can take six of the best in the morning and another six in the afternoon - Monday, Tuesday, Wednesday, Thursday and Friday - and continue to be defiant the next Monday". Teachers signed on and off each day, called the Principal by his or her family name, and wore a tie if male and a dress or skirt if female. Most male teachers caned errant boys regularly (even though the Principal had authorised formally only some or his more senior colleagues to carry out such punishment) while such girls may have found themselves in relative isolation in the "snake pit".

The image (laced also with sounds and smells) recalled above aligns fairly closely with what teachers see falling into the Suppression cluster discussed here. That image may have been appropriate in the early 1960's, but one ought query whether it is appropriate in the 1990's. Some people do argue that a return to the Military camp/Mental straight-jacket sort of school, with its suppression of students and, perhaps, teachers too, is desirable. The results presented here, though, suggest that other images of school are more likely to be associated with quality learning by students.

Like the first group of images, the set which attends largely to **celebration** is generally positive in nature. This finding ought come as no surprise, for through celebration success is recognised and rewarded, failure and loss are buried and mourned so that a new start and fresh directions can be entertained (see, for example, Deal, 1990), heroes are worshipped, stories are told, icons are revered and vision is communicated. Through these practices students and their teachers learn about what is valued in the school, acquire direction for their energies and become imbued with courage to dare to strive for excellence. In addition, too, attributes such as courageous persistence and goal orientation associated with this cluster are likely to play a positive role.

Images associated with **constrained activity** ("programmed activity" may be an equally apt label) within the school as seen by teachers seem to be unrelated generally to students' perceptions of their classroom environment. Nevertheless, teachers who view their school as a Beehive may, knowingly or unknowingly, tend to engage their students in considerable work which is not overly difficult but which keeps them busy without being too rushed.

In general terms it can be argued that it has been shown that students perceive classrooms in the best light when their teachers see the school as cooperative and celebratory and the reverse when their teachers see the school as being suppressive, mechanistic or concerned largely with basic needs. This conclusion applies regardless of the level of schooling under consideration, however it must be recognised that different individual images and clusters of them often correlate with and/or predict variance in classroom environment scales at the Primary and Secondary levels. One of the most outstanding results in this respect is the frequency with which Secondary students' sense of Cohesiveness is associated with or predicted by scores on individual ISM items. A perusal of the results suggests that, if a Secondary school's leadership team is concerned about the ease with which new students negotiate the transition from the Primary level, especially the Cohesiveness aspect, it may wish to think about whether the school is too much Herd, Mental straight-jacket, Military camp, and/or Machine, for example, and too little Family, Garden, Team or Olympic Games.

Another tendency worth mentioning is that it seems that Secondary students' perceptions of the various classroom environment scales is associated with a greater range of teachers' images of school. This, perhaps, is due to the more departmentalised and less tightly coupled nature of Secondary schools, but whatever the cause there is scope for Secondary leadership teams to consider the vigour with which they promote a set of favoured metaphors and images. This is not to say, of course, that there is no scope for such leadership activity at the Primary level too.

Chapter 6

Results and Discussion Concerning Relationships between School Climate and Images of School

This chapter presents and discusses results relevant to the third question which is:

Research Question 3
What significant relationships exist between teachers' perceptions of the school climate and their images of the school?

The question was addressed by examining data generated by the administration of *School Level Environment Questionnaire* (SLEQ)-Actual and *Images of Schools through Metaphor* (ISM)-Actual to the sub-sample of 162 teachers. Where necessary, the scales of ISM were taken to be the independent variables while those of SLEQ, in their turn, were adopted as the dependent variables. The unit of analysis employed throughout this chapter is the scores recorded for individual teachers. The various tables present the statistically significant results in the same manner as the results of the first two research questions were displayed. No descriptive data are provided here since that would entail repetition of information presented in Chapters 4 and 5.

The chapter begins with a presentation of statistically significant correlations between scales of SLEQ and items of ISM. This is followed by the results obtained when scales of SLEQ and clusters from ISM are correlated. Then comes a display of results from multiple regression, first with items of ISM and then with clusters from ISM as the independent variables. Finally, the results are discussed briefly.

6.1 Correlations between Scales of SLEQ and Items of ISM

A scan of Table 6.1 indicates that there are many significant correlations between the scales of SLEQ and a large number of items of ISM. Of course, as stated on pages 95 and 106 previously, some of these correlations (10 or 11 at p=.05 for each of whole sample, Primary and Secondary levels) can be expected to be significant by chance alone.

Nevertheless, when they are examined from the point of view of the items of ISM the results reveal a high degree of consistency of relationship patterns. For example school as Herd, as Creche, as Museum, as Mental straight-jacket, as Military camp, as Ghetto, as Traffic jam, and as Prison tend to relate negatively with the various scales of SLEQ, while school as Family, as Orchestra and as Team tend to relate positively with those

scales. School as Theatre alone does not correlate with any scales of SLEQ, but school as Hospital and as Shopping mall also do not appear to be very relevant to teachers' perceptions of school climate. At the other extreme though, it can be seen that school as Herd, as Family, as Forum, as Orchestra, as Creche, as Museum, as Mental straight-jacket, as Military camp, as Ghetto, as Team, as Traffic jam, as Negotiating area, as Prison and as Living organism are related to a significant extent (in many cases at the $p<.01$ level and at times at the $p<.0001$ level) to up to six of SLEQ's scales. Some, such as school as Ghetto, and school as Team reveal such strong associations regardless of the level of schooling focused upon, but others, including school as

Table 6.1

Statistically Significant Correlations between Scales of SLEQ and Items of ISM

(N = 162; Unit of analysis is the individual teacher)

Items of Images of Schools through Metaphor		Scales of School Level Environment Questionnaire							
		SS	Aff.	PI	SF	PD-M	Inn.	RA	WP
Culture	Ws	-	-	.16*	-	-	.17*	.30**	-
	Pri	.25*	-	-	-	-	-	-	-
	Sec	-	-	.32*	-	-	.31**	.40**	-
Herd	Ws	-.18*	-.23**	-.29**	-	-.32***	-.28**	-.31***	-
	Pri	-	-.25*	-.26*	-	-.48***	-.35**	-.28**	-
	Sec	-.23*	-	-.30**	-	-	-	-.31**	-
Family	Ws	.42***	.41***	.27**	-	-	.25**	.19*	-
	Pri	.40***	.36**	-	-	-	-	-	-
	Sec	.43***	.48***	.36**	-	-	.32**	.30**	-
Forum	Ws	-	.21**	.24**	-	.21**	.20**	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	.25*	.28*	-	.23*	-	-	-
Exhibition	Ws	-	-	-	-	-	-	.16*	-
	Pri	-	-	.22*	-	-	-	-	-
	Sec	-	-.23*	-	-	-	-	-	-
Orchestra	Ws	.17*	.32***	.36***	-	.16*	.20*	-	-.17*
	Pri	-	.35**	.33**	-	-	-	-	-.31**
	Sec	.23*	.31**	.35**	-	-	-	-	-
Hospital	Ws	-	-	-	-	-	-	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	-	-	-	-	-	-	.23*

Table 6.1 Continued

		SS	Aff.	PI	SF	PD-M	Inn.	RA	WP
Creche	Ws	-.26**	-.21**	-.22**	-	-	-	-.33***	-
	Pri	-	-	-	-	-	-	-.27*	-
	Sec	-.41**	-	-.32**	-	-	-	-.34**	
Museum	Ws	-	-.23**	-.28**	-	-.22**	-.24**	-.18*	-
	Pri	-	-.26*	-.23*	-	-	-	-	-
	Sec	-.30**	-	-.33**	-	-.24*	-.35**	-	-
Garden	Ws	.17*	-	-	.16*	-	-	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	.30**	-	-	-	-	-	-	-
Mental straight-jacket	Ws	-.36***	-.32**	-.31***	-	-.24**	-.33***	-	-
	Pri	-	-.29**	-	-.26*	-	-	-	-
	Sec	-.57***	-.36**	-.45***	-	-.29*	-.48***	-	-
Shopping mall	Ws	-	-	-	-	-	-	-	-
	Pri	-	-	-	.26*	-	-	-	-
	Sec	-	-	-	-	-	-	-	-
Beehive	Ws	-	.17*	.24**	-	-	-	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	-	.29**	-	-	-	-	-
Military camp	Ws	-	-.33***	-.28**	-	-.34***	-.30***	-.21**	-
	Pri	-	-.26*	-	-	-.30**	-	-	-
	Sec	-	-.42**	-.43**	-	-.38**	-.39**	-.36**	-
Ghetto	Ws	-.47***	-.34***	-.36***	-	-.16*	-.27**	-.27**	-
	Pri	-.41***	-.40**	-.28**	-	-	-	-.25*	-
	Sec	-.53***	-.31**	-.38**	-	-	-.37**	-.24*	-.27*
Artist's palette	Ws	-	.25**	.17*	-	.15*	-	-	-.17*
	Pri	-	-	-	-	-	-	-	-
	Sec	-	.26*	-	-	-	-	-	-
Machine	Ws	-	-	-	-	-	-	-.20*	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	-.26*	-	-	-	-.27*	-.31**	-
Expedition	Ws	-	-	-	-	-	.21**		-.16*
	Pri	-	.22*	-	-	-	.29**	-	-
	Sec	-	-	-	-	-	-	-	-
Team	Ws	.29**	.44***	.41***	-	.33***	.41***	.21**	-
	Pri	-	.43***	.26*	.26*	.31**	.35**	-	-
	Sec	.43***	.47***	.53***	-	.34**	.43***	-	
Traffic jam	Ws	-.26**	-.30**	-.35***	-	-.25**	-.28**	-.21**	-
	Pri	-	-	-.24*	-	-.25*	-	-	-
	Sec	-.46***	-.45***	-.40**	-	-.24*	-.30**	-.26*	-

Table 6.1 Continued

		SS	Aff.	PI	SF	PD-M	Inn.	RA	WP
Negotiating area	Ws	-	-	.18*	.29*	.27**	.34***	-	-
	Pri	-	-	-	.46***	.27*	.27*	-	-
	Sec	-	.27*	.29*	-	.27*	.38**	-	-
Prison	Ws	-.30***	-.31***	-.35***	-	-.24**	-.33***	-.27**	-
	Pri	-	-.25*	-	-	-	-	-	-
	Sec	-.40**	-.38**	-.53***	-	-.33**	-.44***	-.38**	-
Olympic Games	Ws	.18*	-	-	-	-	-	.18*	-
	Pri	-	-	-	-	-	-	-	-
	Sec	.31**	-	-	-	-	-	-	-
Living organism	Ws	.18*	.22**	.21**	-	-	.16*	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	.30**	.32**	.34**	-	-	-	-	-
Theatre	Ws	-	-	-	-	-	-	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	-	-	-	-	-	-	-
Labour ward	Ws	-	-	-.19*	-	-	-.18*	-	-
	Pri	-	-	-	-	-	-	-	-
	Sec	-	-	-	-	-	-	-	-

* p< .05, ** p< .01, *** p< .0001
Ws = Whole Sample, Pri = Primary, Sec = Secondary

Culture, school as Forum, school as Machine and school as Living organism appear to be related most frequently to perceptions of climate at the Secondary level, while school as Expedition appears to be the only item which is associated significantly with the climate of Primary schools and not with that of Secondary schools.

Turning to a description of Table 6.1 from the perspective of the SLEQ scales, the most obvious feature is that Staff Freedom and Work Pressure are shown to be related significantly to relatively few items of ISM, with Staff Freedom not being associated significantly with any of them at the Secondary level. On the other hand, the other six scales of SLEQ are, clearly, related significantly to many items of ISM for the sample as a whole and when a Primary-Secondary split of the data is made. One example will suffice to illustrate such results: Teachers' perceptions of Student Support are correlated significantly with 12 ISM items at the whole sample level; positively with school as Family, as Orchestra, as Garden, as Team, as Olympic Games and as Living organism, and negatively with school as Herd, as Creche, as Mental straight-jacket, as Ghetto, as Traffic jam and as Prison. When the data are split on a Primary - Secondary

basis it is seen that these correlations normally occur at the Secondary level with the only exceptions being with school as Family and school as Ghetto.

6.2 Correlations between Scales of SLEQ and Clusters from ISM

Table 6.2 displays the statistically significant correlations, for the sample as a whole and following the Primary-Secondary split of the data, between the eight scales of SLEQ and the six clusters resulting from factor analysis of ISM data. The labels attached to the six clusters are provided again here for convenience: cluster 1 - Cooperation, cluster 2 - Suppression, cluster 3 - Constrained Activity, cluster 4 - Celebration, cluster 5 - Basic Needs, cluster 6 - Mechanistic.

Table 6.2

Statistically Significant Correlations between the Eight Scales of SLEQ and the Six Clusters from ISM
(N=162; individual teacher as unit of analysis)

Scales of SLEQ		Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Student Support	Whole sample	.29**	-.43***	-	.25**	-.23*	-
	Primary	-	-.29**	-	-	-	-
	Secondary	.38**	-.57**	-	.31**	-.38**	-.29*
Affiliation	Whole sample	.45***	-.43***	-	.21**	-.24**	-.27**
	Primary	.38**	-.40**	-	.22*	-	-.24*
	Secondary	.54***	-.48***	-	-	-.32**	-.30**
Professional Interest	Whole sample	.39***	-.44***	-	.28**	-.28**	-.31***
	Primary	.24*	-	-	-	-	-.24*
	Secondary	.50***	-.59***	-	.28*	-.38**	-.38**
Staff Freedom	Whole sample	.17*	-	-	-	-	-
	Primary	.27*	-	-	-	-	-
	Secondary	-	-	-	-	-	-
Participatory Decision-Making	Whole sample	.33***	-.33***	-	-	-	-.28**
	Primary	.31*	-.26*	-	-	-	-.38**
	Secondary	.36**	-.40**	-	-	-	-
Innovation	Whole sample	.39***	-.41***		.26**	-.17*	-.30***
	Primary	.33**	-	-	-	-	-.25*
	Secondary	.40**	-.55***	-		-.28*	-.36**
Resource Adequacy	Whole sample	.19*	-.28**	-	.23**	-.26**	-.31***
	Primary	-	-	-	-	-	-.26*
	Secondary	-	-.34**	-	.24*	-.33**	-.37**
Work Pressure	Whole sample	-.16*	-	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	-	-	-	-	-	-

* p< .05, **p< .01, ***p< .0001

Table 6.2 indicates, firstly, that cluster 3 (Constrained Activity) does not correlate significantly with any scale of SLEQ at any level of analysis, and that Staff Freedom and Work Pressure correlate with cluster 1 (Cooperation) alone (but not at the Secondary level). Secondly, it can be seen that where a cluster correlates significantly with any scale it does so always in the same direction (excepting Work Pressure). Thus cluster 1 (Cooperation) correlates with each of the first seven scales of SLEQ when the whole sample is examined, always in the positive direction, and generally at high levels of confidence. On the other hand though, cluster 2 (Suppression) correlates with six of the SLEQ scales at the whole sample level, but always in a negative direction and, again, generally at high levels of confidence. Thirdly, when the Primary-Secondary split is taken into account, it can be seen that while similar correlations do occur between a cluster and a scale on many occasions, there are many other times when they exist at one level or the other. A clear example of this is that Affiliation correlates, generally, in a similar manner with a number of clusters regardless of whether the focus is on the Primary or Secondary level, however, it seems that Student Support and Resource Adequacy usually correlate significantly with a range of clusters at the Secondary level only.

6.3 R^2 Values and Beta Weights from Multiple Regression: Scales of SLEQ and Items of ISM

The R^2 values displayed in Table 6.3.1 indicate that the 26 items of ISM, together, explain or predict variance in six of the eight scales of SLEQ to a statistically significant degree and that this is generally so at the whole Grade 5 - 8 level and as a consequence of a splitting of the data into Grades 5 - 6 and Grades 7 - 8 levels. The proportions of variance so predicted are not inconsiderable - generally in the vicinity of 40 percent at the whole sample level, and frequently above 60 percent at the Secondary level, although some difference in the explanatory power of the ISM items can be seen to occur when attention is focussed on the Primary-Secondary split, especially where Professional Interest, Innovation and Resource Adequacy are concerned. Variance in neither Staff Freedom nor in Work Pressure can be explained by the ISM items at any level.

The Beta weights generated from multiple regression shown in Table 6.3.2 indicate that, prior to splitting of the data according to Primary - Secondary levels, a total of 17 items from ISM are statistically significant in the regression equations of the six scales of SLEQ which qualify for such analysis (i.e., all but Staff Freedom and Work Pressure, with these two scales yielding statistically insignificant R^2 values when the

regression equations include all items of ISM). Eight of these 17 items (school as Herd, as Family, as Creche, as Museum, as Beehive, as Ghetto, as Team, and as Negotiating area) are statistically significant in the regression equations of two or three such scales.

Table 6.3.1

Statistically Significant R^2 Values from Multiple Regression
Dependent Variables: Scales of SLEQ
Independent Variables: Items of ISM
(N=162; individual teacher as unit of analysis)

Scales of SLEQ	Whole Sample Grades 5 - 8	Primary Grades 5 - 6	Secondary Grades 7 - 8
Student Support	.45***	.46*	.62**
Affiliation	.39***	.53**	.62**
Professional Interest	.41***	.43*	.65***
Staff Freedom	-	-	-
Participatory Decision-making	.37***	.59***	.46**
Innovation	.40***	-	.65***
Resource Adequacy	.34***	-	.46*
Work Pressure	-	-	-

*p<.05, **p<.01, ***p<.0001

When the Primary - Secondary split is made it can be seen that school as Machine, as Traffic jam, as Prison, as Olympic Games and as Labour ward are added to the list of those items which are statistically significant in the regression equation of one or other of the SLEQ scales. School as Culture, as Exhibition, as Ghetto, as Machine, as Team and as Theatre are those items which are significant in the equations for more than one SLEQ scale. A perusal of items listed in the Primary Grades 5 - 6 column indicates that eight ISM items are significant in the regression equation of one SLEQ scale and that another two (school as Exhibition and school as Team) are significant in the regression equations of two scales of SLEQ. Similarly, when the items listed in the Secondary Grades 7 - 8 column are observed it is seen that 11 different ISM items are significant in the regression equations of one scale of SLEQ while another three are significant in the equations of more than one scale - school as Culture in those of four SLEQ scales, and school as Ghetto and as Theatre in two.

Table 6.3.2

Statistically Significant Beta Weights from Multiple Regression
Dependent Variables: Scales of SLEQ in which variance is predicted to a statistically significant extent by the ISM items
Independent Variables: Items from ISM
(N=162, individual teachers as unit of analysis)

SLEQ scales	Beta Weights from Multiple Regression					
	Whole Sample Grades 5 - 8		Primary Grades 5 - 6		Secondary Grades 7 - 8	
Student Support	Family	.36***	Family	.41**	Mental straight-jacket	-.38*
	Mental straight-jacket	-.26**	Ghetto	-.35**	Ghetto	-.38*
	Ghetto	-.39***	Machine	.26*		
	Negotiating area	-.16*				
Affiliation	Family	.24**	Museum	-.33*	Exhibition	-.44**
			Team	.37*	Traffic jam	-.30*
Professional Interest	Orchestra	.19*	Culture	-.28*	Culture	.24*
	Museum	-.19*	Exhibition	.47**	Beehive	.33**
	Beehive	.19*			Prison	-.30*
	Team	.20*				
Staff Freedom	Not applicable		Not applicable		Not applicable	
Participatory Decision-Making	Herd	-.18*	Herd	-.27*	Culture	.27*
	Creche	.25**	Exhibition	.43**	Theatre	-.31*
	Shopping mall	.20*	Shopping mall	.38*		
	Beehive	-.18*	Team	.33*		
	Team	.30**	Theatre	-.38**		
Innovation	Creche	.32**	Not applicable		Culture	.31**
	Museum	-.24**			Creche	.43**
	Expedition	.17*			Ghetto	-.37*
	Team	.26**			Machine	-.36*
	Negotiating area	.18*			Team	.38*
	Theatre	-.16*			Negotiating area	.26*
					Olympic Games	.25*
					Theatre	-.36**
					Labour ward	-.33*
Resource Adequacy	Culture	.21**	Not applicable		Culture	.35*
	Herd	-.18*				
	Forum	-.17*				
	Exhibition	.18*				
	Creche	-.19*				
	Ghetto	-.19*				
	Living organism	-.20*				
Work Pressure	Not applicable		Not applicable		Not applicable	

* p< .05, ** p< .01, *** p< .0001

Overlap of ISM-SLEQ associations between the Primary and Secondary areas are seen to exist, for while school as Herd, as Family, as Museum, and as Shopping mall are indicated to be significant at the Primary level alone, and while school as Mental straight-jacket, school as Beehive, school as Traffic jam, school as Prison, school as Creche, school as Negotiation area, school as Olympic Games and school as Labour ward are significant at the Secondary level only, school as Culture, as Exhibition, as Ghetto, as Machine, as Team and as Theatre are items which are significant in regression equations for at least one SLEQ scale at both Primary and Secondary levels of schooling.

6.4 R^2 Values and Beta Weights from Multiple Regression: Scales of SLEQ and Clusters from ISM

Table 6.4.1

Statistically Significant R^2 Values from Multiple Regression
Dependent Variables: Scales of SLEQ
Independent Variables: Clusters from ISM
(N=162; individual teacher as unit of analysis)

Scales of SLEQ	Whole Sample Grades 5 - 8	Primary Grades 5 - 6	Secondary Grades 7 - 8
Student Support	.22***	-	.42***
Affiliation	.28***	.23*	.37***
Professional Interest	.27***	-	.44***
Staff Freedom	-	-	-
Participatory Decision-making	.24***	.34***	.24**
Innovation	.26***	.19*	.34***
Resource Adequacy	.18***	-	.24**
Work Pressure	-	-	-

*p<.05, **p<.01, ***p<.0001

Table 6.4.1 presents statistically significant R^2 values from multiple regression when each scale of SLEQ, in turn, is taken to be the dependent variable and the set of six clusters from ISM are taken to be the independent variables. The clusters from ISM, as a set, do not predict significant proportions of variance in either Staff Freedom or Work Pressure, but between 18 and 28 percent of variance in the other six scales is predicted at the whole sample level. With the Primary - Secondary split of data it is clear that

quite large proportions of variance in the six scales are predicted, especially at the Secondary level.

Table 6.4.2 displays statistically significant Beta weights derived from multiple regression when those scales of SLEQ in which statistically significant proportions of variance are explained by the set of six clusters from ISM are regarded as the dependent variable in turn and the six clusters themselves are taken to be the independent variables. The table indicates that the six clusters from ISM are consistent in the

Table 6.4.2

Statistically Significant Beta Weights
Dependent Variables: Scales of SLEQ in which variance is predicted to a statistically significant extent by the clusters from ISM
Independent Variables: Clusters from ISM
(N=162, individual teachers as unit of analysis)

Scales of SLEQ		Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Student Support	Whole sample	-	-.38**	-	-	-	-
	Primary			Not applicable			
	Secondary	-	-.51**	-	-	-	-.27*
Affiliation	Whole sample	.34**	-.19	-	-	-	-
	Primary	-	-	-	-	-	-
	Secondary	.43**	-	-	-	-	-
Professional Interest	Whole sample	-	-.20*	-	-	-	-
	Primary			Not applicable			
	Secondary	-	-.36**	-	-	-	-
Staff Freedom	Whole sample			Not applicable			
	Primary			Not applicable			
	Secondary			Not applicable			
Participatory Decision-Making	Whole sample	.25*	-	-.26**	-	.23**	-.23**
	Primary	-	-	-.34**	.26*	.34**	-.39**
	Secondary	.28*	-	-	-	-	-
Innovation	Whole sample	-	-.24*	-	-	-	-.19*
	Primary	-	-	-	-	-	-.25*
	Secondary	-	-.42**	-	-	-	-
Resource Adequacy	Whole sample	-	-	-	.22*	-	-.23**
	Primary			Not applicable			
	Secondary	-	-	-	-	-	-
Work Pressure	Whole sample			Not applicable			
	Primary			Not applicable			
	Secondary			Not applicable			

*p< .05, **p< .01

direction of their association with the various SLEQ scales. Five of the six clusters are significant in the regression equation for Participatory Decision-Making. Cluster 2 (Suppression) explains part of the variance in four of the six relevant scales of SLEQ, while cluster 6 (Mechanistic) explains a portion of variance in four such scales. In all cases, where a cluster is significant in the regression equation for a SLEQ scale, it is so at either the Primary or the Secondary level, not both.

6.5 Discussion

There are clear, patterned relationships between teachers' images of their school and their perceptions of its work climate. This is an important finding, especially if one accepts that, as claimed in Chapter 1, apart from any impact which teachers' perceptions of school climate may have on their students' learning (through, perhaps, an influence upon the students' perceptions of the classroom environment), it can be argued that positive school climates ought be valued in their own right. If the eight scales of the *School Level Environment Questionnaire* provide, in sum, a reasonably adequate description of what a school's organisational climate could and should be, it would follow that one may judge that a positive school climate is one in which teachers perceive that they:

1) enjoy good rapport between themselves and students;
2) feel accepted by their colleagues;
3) are encouraged and helped to further their professional development;
4) are relatively free of formal constraining rules and close supervisory practices;
5) have opportunities to participate in decision-making;
6) judge that the school is in favour of planned change, experimentation and individualisation;
7) have access to adequate resources; and
8) are not subject to excessive work pressure.

If the above claim has merit, it follows that school Principals and other leaders ought enquire as to what might be done to promote such perceptions among their teachers. The results reported in this chapter indicate that schools characterised by cooperation, as embodied in images such as school as Family, school as Team, school as Forum, school as Negotiating area and school as Artist's palette, and by celebration (while not forgetting the goal-oriented and courageous persistence aspects of the cluster) as depicted in images such as school as Orchestra, school as Culture, school as Olympic Games and school as Expedition offer promise in this regard. Similarly, the results indicate that schools characterised by what might be described as suppression (as in school as Mental straight-jacket, school as Military camp, school as Ghetto and school

as Prison), by an emphasis upon basic needs (such as in school as Creche and as Labour ward for example), and by a mechanistic atmosphere (as in school as Machine, school as Herd and school as Museum) are associated in a negative manner with favoured types of climates.

The various results revealed here are, by and large, of considerable statistical significance. This means that there may very well be some sort of causal connection between the images teachers have of their school and the perceptions they have of its work climate. If this is true Principals and other school leaders are likely to find their efforts to enhance their teachers' perceptions of, say, Student Support, frustrated if they pursue that goal within a school which is seen by teachers to be a Ghetto, a Herd or a Mental straight-jacket for example.

When looking at the results following a split in the data between Primary and Secondary levels of schooling, while there appears to be little difference in the mean scores generated by ISM, it seems as though a somewhat greater number of images are at play in the latter level than in the former. Further, it will be recalled that the data tended to indicate somewhat greater variation of intensity of images at the Secondary than the Primary levels. These findings are probably due to Secondary schools tending to be larger, more complex, more departmentalised and more loosely coupled generally than Primary schools. It suggests that one needs to be careful, when contemplating the nature of Secondary schools in particular, not to assume that there is necessarily a fairly common organisational culture, paradigm or mindset within the school which provides the rudder to keep all teachers moving in roughly the same direction. If this is true, it seems that Secondary school leaders especially need to think carefully about the sorts of stories they tell, ceremonies they conduct, heroes they worship and so on in order that they may be successful in more tightly coupling core values, beliefs assumptions and practices within the school as advocated by, for example, Sergiovanni (1991). What is more, it seems that the advice offered to school leaders by researchers such as Johnson and Johnson (1989) concerning the structuring of collegial support groups, task forces and ad hoc decision-making groups is unlikely to be misplaced.

Chapter 7

Conclusion

This chapter brings the thesis to a close by providing, in turn, a brief review of what the research set out to achieve and of the results applicable to the various research questions, a statement concerning the usefulness of the research approach and the questionnaires when employed by practitioners in the field, an indication of further research that could/should be undertaken, a list of suggestions for refinement of the questionnaires, a reminder of the limitations which emanate from the nature of the sample, and a concluding note concerning the overall success of the study.

7.1 Review

The study reported here aimed, firstly, to enquire into relationships that exist between students' perceptions of their classroom environment (which has been shown to be an important factor influencing student learning) and their teachers' perceptions of the school's work climate. A second aim was concerned with identifying metaphors which describe, in part at least, teachers' images of their school and thus yield an insight into their assumptions, subjective knowledge, concepts and the like concerning schooling (and hence help explain their behaviours). In addition, the study sought to probe links that exist between these metaphors and images, the students' perceptions of classroom environment, and the teachers' perceptions of school climate. These aims prompted the following three research questions:

1. What significant relationships exist between classroom environment as perceived by students and school climate as perceived by their teachers?

2. What significant relationships exist between students' perceptions of the classroom environment and their teachers' images of the school?

3. What significant relationships exist between teachers' perceptions of the school climate and their images of the school?

One of the important issues under discussion currently in education concerns the transition of students from one level of schooling to the next. Given the greater complexity and size of Secondary schools, and the consequent greater degree of looseness in their structures, in comparison with most Primary schools, it was anticipated that students at Primary and Secondary levels might hold differing perceptions of their classroom environments, and that teachers at those levels might

perceive their school climates differently and that they may possess somewhat differing images of their schools. If this was, indeed, the case it was thought that some light would be thrown on ways of minimising or managing the transition problem. Given these views, it was decided to probe the three research questions at the whole sample level and at Primary and Secondary levels separately.

The study was informed by an extensive review of the literature in the areas of school climate, classroom environment, image, metaphor, world hypotheses, paradigms, mindscapes, organisational culture, and students' transition from one level of schooling to the next.

In order to answer the three research questions representative samples of Tasmanian teachers (N=162) and matching classes of students (N=162 classes) in the Grades 5 - 8 range were surveyed. Data were gathered from other unmatched Tasmanian teachers and students as well, and such data had roles to play, but not in answering the research questions themselves. Three questionnaires were developed, adapted or adopted to gather the data and they were validated or revalidated in the study. The data generated by this process were examined at the Grades 5 - 8 level and were examined also as a result of a split of the data according to Primary (Grades 5 - 6) and Secondary (Grades 7 - 8) levels. Statistical probes, including correlation, multiple regression, t-tests for independent and related samples where appropriate and factor analysis, were employed where appropriate.

Chapters 4, 5 and 6 provided relevant descriptive data and also presented and discussed the results applicable to each of the research questions in turn. In regard to the first question it was concluded that students' perceptions of their classroom environment and their teachers' perceptions of some aspects of the school climate are related at a statistically significant extent. This applies especially where the school climate scale "Student Support" is concerned. This means that the recent "Supportive School Environment" thrust in Tasmania, with its focus on schools developing policies and practices in a co-ordinated, on-going manner in order to facilitate an ethos marked by supportiveness and co-operation within which people learn to take responsibility for their behaviours, has not been misplaced. As a consequence of this study, therefore, Principals and other school leaders can justify focusing attention on the teachers' work climate, not only because a good work climate is to be valued for its own sake, but also because the belief that such a climate is associated with student learning through its association with students' perceptions of the classroom environment has been reinforced.

The investigation of the second research question indicated that important associations exist between teachers' images of their school, as revealed by metaphors they use to describe the school, and their students' perceptions of the classroom environment, and, therefore between those images and the quality of the students' learning. This finding, also, suggests that school leaders ought consider it important to enquire into the nature of the images their teachers have of their school and to contemplate ways of building or strengthening particular images in them. The study offers guidance as to what the preferred images might be, since those concerned with cooperation, celebration, goal orientation and courage (as opposed to those associated with suppression, constrained activity, mechanical response and satisfaction of basic needs) were shown to be associated in a desirable direction with students' perceptions of the various classroom environmental scales, namely, Cohesiveness, Satisfaction, Speed, Difficulty, Formality and Democracy. To the extent that these images are acquired through storytelling, ceremonies, metaphors and other symbols and practices school leaders can take guidance from this study in choosing which stories to tell, which events to recognise at ceremonies, which metaphors to incorporate in their written and oral language, which heroes to worship publicly, and so on. As an example, the study has shown that a criterion for deciding whether or not to call a special school assembly to recognise publicly a particular event is likely to be: "Would a family or a team get together on such an occasion?" If the answer is judged to be "Yes", then the school assembly is likely to be appropriate.

The results of the investigation of the third research question indicate that the two variables under consideration, teachers' perceptions of the school climate and their images of the school, are often associated with each other in a very significant manner. An implication to be drawn from this is that school leaders ought consider both aspects as they engage in matters related to school improvement. Thus, while it may be that an enhanced view of Student Support, for example, among staff may be judged to be desirable, any attempts to achieve that may founder if the school persists in being seen by teachers as, say, a Ghetto, Military camp, Prison or other such suppressive place.

The results point to there being little difference in the mean values of the various classroom environment and school climate scales and image of school items between Primary and Secondary levels. However, there appears to be a greater variety of images related to school climate and classroom environment scales and a greater variability in the extent to which particular images are held at Secondary level in comparison with the Primary level. This indicates that school leaders at the former

level, especially, need to take account of the loosely coupled nature of their school when it comes to core values and beliefs and to the metaphors, stories and so on which shape the images of teachers and the school's culture generally.

The study did not find that students were likely to leave Primary schools, which are seen by their teachers in one sort of light, to enter Secondary schools which are seen by teachers there in a vastly different sort of light. What was found though is that while one image may predict variance in students' perceptions of the various classroom environment scales (and thus in learning) at the Primary level, different images may predict variance in those scales at the Secondary level. Further, Secondary school students are likely to have teachers whose images of school vary more than is the case in Primary school. Thus it is not surprising if Secondary students feel confused and alienated during the transition when they are confronted in the first period of the day by a teacher who sees the school distinctly as, say, a Family, by another teacher in the second period who has an unmuddied image of the school as a Factory and by another in the third period (all this before morning recess) who has a vague image of the school as an Artist's palette and/or an Intellectual spaceship. School leaders, in-service co-ordinators and even those who provide pre-service courses can take guidance from these findings.

7.2 Usefulness of the Research Approach

It is one thing to identify the nature of classroom and school climates and teachers' images of their school, and to point to significant relationships between them. It is another matter, though, to be able to change those things in directions suggested by research. Findings of other studies (for example Fisher, 1989; Fisher and Fraser, 1985, 1990; Fisher and Grady, 1986; Fraser, 1981b; Fraser and Deer, 1983; Fraser, Docker and Fisher, 1988) have demonstrated that students' and teachers' perceptions of classroom environments and school climates, respectively, can be changed in desirable directions. In a number of instances the data generated in the present study are consistent with those earlier studies in that it has facilitated formal and informal enhancement efforts in classrooms and schools.

The feedback provided to individual teachers concerning their students' perceptions of their classroom environment stimulated change strategies in a number of classrooms. At the time of writing several of these teachers had completed one full cycle of assess-draw profiles-reflect-intervene-reassess and they had expressed an intention to engage in further such cycles. In a number of instances school Principals were supplied with summary data. These data related to: 1) students' perceptions of the environment of a

sample of classrooms; and 2) about half of the staff's views of the school climate and of their images of the school. In addition, means of the data for the broader samples were supplied. This feedback was employed by one large Secondary school's Supportive School Environment Committee and by another's Professional Development and Curriculum Committees to identify areas of concern and to develop appropriate intervention strategies. One novel use to which the data were put was to point to differences in the way senior and junior staff perceive the school climate. These two schools have already made several changes to their policies as a result of this activity, and at least one senior member of staff indicated a belief that 'SLEQ, ISM and MCE are useful tools available to educators to help them in planning, problem-solving and curriculum development - in other words, in changing things'.

Another participating school, this time a rural primary school of seven teachers, engaged in a whole-school audit, basing many of its processes and decisions on the feedback obtained from involvement in this research project. The Principal has indicated that benefit was gained from the whole staff's involvement in deciding for themselves what it means for the school to be a Family, a Team, an Exhibition and so on. With this involvement and shared sense of meaning, together with the *Images of Schools through Metaphor* (ISM) - Actual and Ideal - data for their school and means for the items for the sample as a whole, the staff were able to identify areas they regarded as needing attention. In particular, the staff were able to confirm their belief that one of their goals must be to develop a collaborative school culture which is characterised by teachers, parents, students and community members communicating, growing and deciding together in the same way as they see an extended Family or a Team carrying out its activities.

A conclusion to be drawn from the sorts of experiences outlined above is that while the general approach and the instruments employed in this study can be useful in identifying and changing particular aspects of a school, they can also be useful in assisting personnel to probe and perhaps modify the school's very essence.

7.3 Future Research

Initiatives such as those outlined above are occasionally written up as a Master of Education dissertation, a Bachelor of Education project or a smaller assignment in award bearing courses. However, a number of detailed case studies are required in order to describe what happens to the people, the tasks, the technologies and the structures within schools as initiatives are taken to change teachers' images of their school and perceptions of its climate. Similarly, rich descriptions are needed to add to

knowledge of what goes on in classrooms as attempts are made to enhance their environments.

Many initiatives concerning school climate and classroom environment emanate from a person-environment fit hypothesis and consequently aim to promote greater congruence between the climate/environment as inhabitants perceive it and as they would prefer it to be. There does not appear to be any barrier to adopting a similar sort of strategy when considering teachers' images of their school. During the course of this study teachers were asked to complete ISM Actual and Ideal, and, where participation in the project was on a whole-school basis, Principals were supplied with data which reflected both perspectives. Those schools referred to immediately above are likely to employ in an on-going fashion the change cycle touched on above and explained in more detail in section 2.1.10. Without belittling in any way these and similar examples of action research using the two forms of ISM, a study which focuses on Actual-Ideal congruence in a large number of teachers' images of their school is warranted.

Despite the success of the study in accounting for statistically significant proportions of variance in students' perceptions of the various scales of their classroom environment, quite large proportions of such variance cannot be explained by their teachers' perceptions of school climate or image of the school. The magnitude of these unexplained portions ranges from about 50 percent up to 100 percent in some instances. There is scope to conduct studies in order to explain more of the variance in the various scales. Thus another avenue for research lies, for example, in investigating images of school held by students, parents and others, and images of classrooms held by students and teachers. A number of teachers who were involved in this study indicated that they thought a link between their image of school and student learning was likely to exist (through, perhaps, an intervening variable such as classroom environment). At the same time, though, some of these teachers suggested that an "unhealthy" image of school held by parents and others who are significant in shaping the images that students have of a school/classroom could weaken the effects of any "healthy" image teachers may have. An instrument similar to *Images of Schools through Metaphor* could be very useful in any exercise which probed this matter.

The various instruments proved to be highly economical in their use and attracted very few invalid responses, which attests to their "consumer friendliness". In particular, several people involved in the research project indicated that ISM seemed to be especially economic in its use and, due to its open-ended nature, enabled teachers to respond according to their own agendas and ways of viewing the world, rather than to

those of the researcher. This is not to claim that ISM is able to reveal as much about a subject's image of school as would, say, a careful analysis of his or her language (including metaphor) in use. Further validation of ISM and its approach ought be undertaken through offering it to teachers (and others perhaps) and comparing results obtained from a parallel probe of the type suggested in the previous sentence.

7.4 Refinement of the Instruments

While the instruments used in this study enabled the research questions to be answered, experience suggests that a number of refinements could be made to each of them.

First, it is important that instruments such as *My Class Environment* (MCE) and *School Level Environment Questionnaire* (SLEQ) are able to be hand-scored easily, and this is facilitated by having equal numbers of items in each scale canvassed by the instrument. It will be recalled that the data generated by items 15 and 29 of MCE and item 39 of SLEQ were ignored in the study once it was demonstrated that they correlated weakly or even negatively with the other items in their respective scales. Thus these items ought be rewritten and a validation process akin to the one described in Chapters 4 and 5 of this thesis should be conducted again in order to improve the instruments in this respect.

Secondly, given the comments written on MCE returns by some students in several classes, some consideration ought be given to extending the response choice from a "Yes/No" format to allow for a "Sometimes" or "Unsure" reaction.

Thirdly, given the overlap identified in this study between a number of scales of SLEQ (in the same way as identified by Braithwaite, 1991), consideration should be given to further development and validation of the instrument.

Fourthly, while the scope of *Images of Schools through Metaphor* proved to be adequate for this study, there does not appear to be any good reason why it cannot be extended to probe more carefully relationships which are of particular interest to other researchers. For instance, it will be recalled that the present study failed to give much insight into the sorts of images which are associated with teachers' perceptions of Staff Freedom and Work Pressure. Consequently the addition of items such as, perhaps, school as Whirlpool, school as Pressure cooker, school as Patchwork quilt, school as House of Horrors and the like may prove to be worthwhile in this regard. Further, given the persuasiveness of Starratt's (1990) view of schooling as Drama and the limited significance placed by teachers on school as Theatre when responding to ISM,

another version of ISM might substitute an item such as "school as rehearsal room for the drama of life" (although such a spelling out of the metaphor may not be within the spirit of the approach which attempts to keep the researcher's views outside the research design).

7.5 Limitations of the Sample

The results of the study cannot, of course, be generalised in an indiscriminate manner to other populations. The sample was not a random one, even from the Tasmanian population. The nature of the sample, being fairly large and representative of the Tasmanian education setting, however, does not prevent interested parties extending the results of this study to their own situations in a sensitive manner. Clearly, though, there is scope for replication of this work in other regions of Australia and elsewhere.

7.6 Coda

The research reported here breaks new ground in several fields of knowledge. The study is one of few which have attempted to examine relationships between teachers' perceptions of school climate and students' perceptions of classroom environment, and hence, it has been argued, with the quality of students' learning. In particular, the study has demonstrated that attention to the nature of the school climate in terms of the extent to which teachers judge it to characterise good rapport between teachers and students and the extent to which students behave in a responsible and well behaved manner is a feature of schooling which deserves emphasis.

The study has also demonstrated, for what is thought to be the first time in an empirical manner, that certain images teachers have of their school are related, in a positive or negative manner, with students' and teachers' perceptions of their classroom environments and school climates respectively. Consequently, the study has pointed clearly to the importance of school leaders telling stories, selecting heroes, conducting ceremonies, employing metaphors and so on in the knowledge of how these may influence teachers' images of their school. What is more, the foregoing pages have provided positive guidance to school leaders to the effect that schools which are regarded by teachers to be cooperative and celebratory are to be preferred to those which are regarded by them as being suppressive, mechanistic or concerned with basic needs.

The study also added to the body of knowledge concerning students' transition from Primary to Secondary levels of schooling, and indicated the need for school leaders at

the Secondary level to consider carefully the very nature of the rich tapestries which are their schools.

New ground has been broken, too, as a result of this study's demonstration that a simple, economic and open-ended questionnaire, employing metaphor, can be used to good effect in order to gain an insight into teachers' images of their school.

Not least of the outcomes has been the fact that the concepts which underpin the study, the processes which were employed in it, and the data generated by the administration of a set of valid and reliable questionnaires which are easy to administer and score, have been applied readily for the betterment of schools and the students and teachers within them.

As a final word, it is hoped that the spirit and general thrust, if not always the details, of this piece of research might be viewed as 'an alternative to the inherently sterile pursuit of a deterministic behavioural science' (Bates, 1982) which educational administration, and, indeed, other aspects of the educational enterprise are sometimes seen to be.

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Appendices

Appendix A

MY CLASS ENVIRONMENT (MCE)
STUDENT ACTUAL

DIRECTIONS

This is not a test. The questions on the other side of the page 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
32. Most children in this class are good friends.

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

(Yes) No

If you don't agree that most children 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.

Please remember you are describing your actual classroom

		Circle your answer
1.	In my class everybody is my friend	Yes No
2.	The pupils enjoy their schoolwork in this class.	Yes No
3.	The pace of the class is rushed.	Yes No
4.	In our class the work is hard to do.	Yes No
5.	Pupils who break a rule are punished.	Yes No
6.	Some pupils have more say on what happens in class than others.	Yes No
7.	All pupils in my class are close friends.	Yes No
8.	Some pupils are unhappy in class.	Yes No
9.	Pupils have to hurry to finish their work.	Yes No
10.	Most children are able to do their schoolwork without help.	Yes No
11.	Pupils are asked to follow strict rules.	Yes No
12.	All children are equal in making class decisions.	Yes No
13.	Some people in my class are unfriendly to me.	Yes No
14.	Children seem to like the class.	Yes No
15.	There is lots of time for day-dreaming in class.	Yes No
16.	Only the smart pupils are able to do their work.	Yes No
17.	There is a right way of doing things in the class.	Yes No
18.	All pupils have an equal say in class affairs.	Yes No
19.	All of the pupils in my class like one another.	Yes No
20.	Most of the pupils are pleased with the class.	Yes No
21.	Class members feel rushed to finish their work.	Yes No
22.	Schoolwork is hard to do in this class.	Yes No
23.	There is a set of rules for children to follow.	Yes No
24.	Decisions affecting the whole class are made by a few children.	Yes No
25.	Children in our class like each other as friends.	Yes No
26.	The class is fun.	Yes No
27.	Pupils have difficulty in keeping up with the work.	Yes No
28.	Most of the pupils in my class know how to do their work.	Yes No
29.	There are few rules to follow in this class.	Yes No
30.	What the class does is decided by all pupils.	Yes No

For Teacher's Use Only : Co..... Sa..... Sp..... Di..... Fo..... De.....

Appendix B

MY CLASS ENVIRONMENT (MCE)
STUDENT PREFERRED

DIRECTIONS

This is not a test. The questions on the other side of the page are to find out what your preferred or ideal class would be like.

Each sentence is meant to describe what your preferred or ideal class would be like.

Draw a circle around

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

EXAMPLE
32. Most children in this class would be good friends.

If you agree that most children in your preferred or ideal class would be good friends, circle the Yes like this:

(Yes) No

If you don't agree that most children in your preferred or ideal 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.

Please remember you are describing your preferred or ideal classroom

		Circle your answer
1.	In my class everybody would be my friend	Yes No
2.	The pupils would enjoy their schoolwork in this class.	Yes No
3.	The pace of the class would be rushed.	Yes No
4.	In our class the work would be hard to do.	Yes No
5.	Pupils who break a rule would be punished.	Yes No
6.	Some pupils would have more say on what happens in class than others.	Yes No
7.	All pupils in my class would be close friends.	Yes No
8.	Some pupils would be unhappy in class.	Yes No
9.	Pupils would have to hurry to finish their work.	Yes No
10.	Most children would be able to do their schoolwork without help.	Yes No
11.	Pupils would be asked to follow strict rules.	Yes No
12.	All children would be equal in making class decisions.	Yes No
13.	Some people in my class would be unfriendly to me.	Yes No
14.	Children would seem to like the class.	Yes No
15.	There would be lots of time for day-dreaming in class.	Yes No
16.	Only the smart pupils would be able to do their work.	Yes No
17.	There would be a right way of doing things in the class.	Yes No
18.	All pupils would have an equal say in class affairs.	Yes No
19.	All of the pupils in my class would like one another.	Yes No
20.	Most of the pupils would be pleased with the class.	Yes No
21.	Class members would feel rushed to finish their work.	Yes No
22.	Schoolwork would be hard to do in this class.	Yes No
23.	There would be a set of rules for children to follow.	Yes No
24.	Decisions affecting the whole class would be made by a few children.	Yes No
25.	Children in our class would like each other as friends.	Yes No
26.	The class would be fun.	Yes No
27.	Pupils would have difficulty in keeping up with the work.	Yes No
28.	Most of the pupils in my class would know how to do their work.	Yes No
29.	There would be few rules to follow in this class.	Yes No
30.	What the class does would be decided by all pupils.	Yes No

For Teacher's Use Only : Co..... Sa..... Sp..... Di..... Fo..... De.....

Appendix C

School Level Environment Questionnaire (SLEQ)
Teacher 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 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.	SD	D	N	A	SA
2.	I seldom receive encouragement from colleagues.	SD	D	N	A	SA
3.	Teachers frequently discuss teaching methods and strategies with each other.	SD	D	N	A	SA
4.	I am often supervised to ensure that I follow directions correctly.	SD	D	N	A	SA
5.	Decisions about the running of the school are usually made by the principal or a small group of teachers.	SD	D	N	A	SA
6.	It is very difficult to change anything in this school.	SD	D	N	A	SA
7.	The school or department library includes an adequate selection of books and periodicals.	SD	D	N	A	SA
8.	There is constant pressure to keep working.	SD	D	N	A	SA
9.	Most students are helpful and cooperative to teachers.	SD	D	N	A	SA
10.	I feel accepted by other teachers.	SD	D	N	A	SA
11.	Teachers avoid talking with each other about teaching and learning.	SD	D	N	A	SA
12.	I am not expected to conform to a particular teaching style.	SD	D	N	A	SA
13.	I have to refer even small matters to a senior member of staff for a final answer.	SD	D	N	A	SA
14.	Teachers are encouraged to be innovative in this school.	SD	D	N	A	SA
15.	The supply of equipment and resources is adequate.	SD	D	N	A	SA
16.	Teachers have to work long hours to complete all their work.	SD	D	N	A	SA
17.	Most students are pleasant and friendly to teachers.	SD	D	N	A	SA
18.	I am ignored by other teachers.	SD	D	N	A	SA
19.	Professional matters are seldom discussed during staff meetings.	SD	D	N	A	SA
20.	It is considered very important that I closely follow syllabuses and lesson plans.	SD	D	N	A	SA
21.	Action can usually be taken without gaining the approval of the subject department head or a senior member of staff.	SD	D	N	A	SA
22.	There is a great deal of resistance to proposals for curriculum change.	SD	D	N	A	SA
23.	Video equipment, tapes and films are readily available and accessible.	SD	D	N	A	SA
24.	Teachers do not have to work very hard in this school.	SD	D	N	A	SA

(Continued over page)

25. There are many noisy, badly behaved students.	SD	D	N	A	SA
26. I feel that I could rely on my colleagues for assistance if I needed it.	SD	D	N	A	SA
27. Many teachers attend in-service and other professional development courses.	SD	D	N	A	SA
28. There are few rules and regulations that I am expected to follow.	SD	D	N	A	SA
29. Teachers frequently are asked to participate in decisions concerning administrative policies and procedures.	SD	D	N	A	SA
30. Most teachers like the idea of change.	SD	D	N	A	SA
31. Adequate duplicating facilities and services are available to teachers.	SD	D	N	A	SA
32. There is no time for teachers to relax.	SD	D	N	A	SA
33. Students get along well with teachers.	SD	D	N	A	SA
34. My colleagues seldom take notice of my professional views and opinions.	SD	D	N	A	SA
35. Teachers show little interest in what is happening in other schools.	SD	D	N	A	SA
36. I am allowed to do almost as I please in the classroom.	SD	D	N	A	SA
37. I am encouraged to make decisions without reference to a senior member of staff.	SD	D	N	A	SA
38. New courses or curriculum materials are seldom implemented in the school.	SD	D	N	A	SA
39. Tape recorders and cassettes are seldom available when needed.	SD	D	N	A	SA
40. You can take it easy and still get the work done.	SD	D	N	A	SA
41. Most students are well-mannered and respectful to the school staff.	SD	D	N	A	SA
42. I feel that I have many friends among my colleagues at this school.	SD	D	N	A	SA
43. Teachers are keen to learn from their colleagues.	SD	D	N	A	SA
44. My classes are expected to use prescribed textbooks and prescribed resource materials.	SD	D	N	A	SA
45. I must ask my subject department head or senior member of staff before I do most things.	SD	D	N	A	SA
46. There is much experimentation with different teaching approaches.	SD	D	N	A	SA
47. Facilities are inadequate for catering for a variety of classroom activities and learning groups of different sizes.	SD	D	N	A	SA
48. Seldom are there deadlines to be met.	SD	D	N	A	SA
49. Very strict discipline is needed to control many of the students.	SD	D	N	A	SA
50. I often feel lonely and left out of things in the staffroom.	SD	D	N	A	SA
51. Teachers show considerable interest in the professional activities of their colleagues.	SD	D	N	A	SA
52. I am expected to maintain very strict control in the classroom.	SD	D	N	A	SA
53. I have very little say in the running of the school.	SD	D	N	A	SA
54. New and different ideas are always being tried in this school.	SD	D	N	A	SA
55. Projectors and filmstrips, transparencies and films are usually available when needed.	SD	D	N	A	SA
56. It is hard to keep up with your workload.	SD	D	N	A	SA

Office use only

SS .... Aff .... PI .... SF .... PDM .... Inn .... RA .... WP ....

Appendix D

School-Level Environment Questionnaire (SLEQ)
Teacher 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 your school environment in which you would *prefer* to work. Indicate your answer 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.	SD	D	N	A	SA
2.	I would seldom receive encouragement from colleagues.	SD	D	N	A	SA
3.	Teachers would frequently discuss teaching methods and strategies with each other.	SD	D	N	A	SA
4.	I would often be supervised to ensure that I follow directions correctly.	SD	D	N	A	SA
5.	Decisions about the running of the school usually would be made by the principal or a small group of teachers.	SD	D	N	A	SA
6.	It would be very difficult to change anything in this school.	SD	D	N	A	SA
7.	The school or department library would include an adequate selection of books and periodicals.	SD	D	N	A	SA
8.	There would be constant pressure to keep working.	SD	D	N	A	SA
9.	Most students would be helpful and cooperative to teachers.	SD	D	N	A	SA
10.	I would feel accepted by other teachers.	SD	D	N	A	SA
11.	Teachers would avoid talking with each other about teaching and learning.	SD	D	N	A	SA
12.	I would not be expected to conform to a particular teaching style.	SD	D	N	A	SA
13.	I would have to refer even small matters to a senior member of staff for a final answer.	SD	D	N	A	SA
14.	Teachers would be encouraged to be innovative in this school.	SD	D	N	A	SA
15.	The supply of equipment and resources would be adequate.	SD	D	N	A	SA
16.	Teachers would have to work long hours to complete all their work.	SD	D	N	A	SA
17.	Most students would be pleasant and friendly to teachers.	SD	D	N	A	SA
18.	I would be ignored by other teachers.	SD	D	N	A	SA
19.	Professional matters seldom would be discussed during staff meetings.	SD	D	N	A	SA
20.	It would be considered very important that I closely follow syllabuses and lesson plans.	SD	D	N	A	SA
21.	Action could usually be taken without gaining the approval of the subject department head or a senior member of staff.	SD	D	N	A	SA
22.	There would be a great deal of resistance to proposals for curriculum change.	SD	D	N	A	SA
23.	Video equipment, tapes and films would be readily available and accessible.	SD	D	N	A	SA
24.	Teachers would not have to work very hard in the school.	SD	D	N	A	SA

(Continued over page)

25. There would be many noisy, badly behaved students.	SD	D	N	A	SA
26. I would feel that I could rely on my colleagues for assistance if I needed it.	SD	D	N	A	SA
27. Many teachers would attend in-service and other professional development courses.	SD	D	N	A	SA
28. There would be few rules and regulations that I am expected to follow.	SD	D	N	A	SA
29. Teachers frequently would be asked to participate in decisions concerning administrative policies and procedures.	SD	D	N	A	SA
30. Most teachers would like the idea of change.	SD	D	N	A	SA
31. Adequate duplicating facilities and services would be available to teachers.	SD	D	N	A	SA
32. There would be no time for teachers to relax.	SD	D	N	A	SA
33. Students would get along well with teachers.	SD	D	N	A	SA
34. My colleagues seldom would take notice of my professional views and opinions.	SD	D	N	A	SA
35. Teachers would show little interest in what is happening in other schools.	SD	D	N	A	SA
36. I would be allowed to do almost as I please in the classroom.	SD	D	N	A	SA
37. I would be encouraged to make decisions without reference to a senior member of staff.	SD	D	N	A	SA
38. New courses or curriculum materials seldom would be implemented in the school.	SD	D	N	A	SA
39. Tape recorders and cassettes seldom would be available when needed.	SD	D	N	A	SA
40. You could take it easy and still get the work done.	SD	D	N	A	SA
41. Most students would be well-mannered and respectful to the school staff.	SD	D	N	A	SA
42. I would feel that I had many friends among my colleagues at this school.	SD	D	N	A	SA
43. Teachers would be keen to learn from their colleagues.	SD	D	N	A	SA
44. My classes would be expected to use prescribed textbooks and prescribed resource materials.	SD	D	N	A	SA
45. I would have to ask my subject department head or senior member of staff before I do most things.	SD	D	N	A	SA
46. There would be much experimentation with different teaching approaches.	SD	D	N	A	SA
47. Facilities would be inadequate for catering for a variety of classroom activities and learning groups of different sizes.	SD	D	N	A	SA
48. Seldom would there be deadlines to be met.	SD	D	N	A	SA
49. Very strict discipline would be needed to control many of the students.	SD	D	N	A	SA
50. I would often feel lonely and left out of things in the staffroom.	SD	D	N	A	SA
51. Teachers would show considerable interest in the professional activities of their colleagues.	SD	D	N	A	SA
52. I would be expected to maintain very strict control in the classroom.	SD	D	N	A	SA
53. I would have very little say in the running of the school.	SD	D	N	A	SA
54. New and different ideas would always be tried in the school.	SD	D	N	A	SA
55. Projectors and filmstrips, transparencies and films would usually be available when needed.	SD	D	N	A	SA
56. It would be hard to keep up with your workload.	SD	D	N	A	SA

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Appendix E

Images of Schools through Metaphor - Actual (ISMA)

The power of metaphor is such that we become conscious of likenesses between fundamentally different things. There is a claim that our thought processes are very largely metaphorical in nature, and, indeed, that the metaphors we use not only reveal something of how we think but also actually shape our behaviour.

This questionnaire employs metaphor as a tool to reveal something of the images teachers have of their schools **as they actually are.**

On the reverse side of this sheet is a list of metaphors, some of which might enable you to provide an image of your school, or a major aspect of it, **as it actually is.**

Please indicate the extent to which you agree or disagree that each metaphor describes accurately your school (or a major aspect of it) **as it actually is.**

Indicate your response by **circling**:

SD if you **strongly disagree** that the metaphor describes your school, or a major aspect of it, as it actually is;

D if you **disagree** that the metaphor describes your school, or a major aspect of it, as it actually is;

N if you **neither agree nor disagree** that the metaphor describes your school, or a major aspect of it, as it actually is **or are unsure**;

A if you **agree** that the metaphor describes your school, or a major aspect of it, as it actually is;

SA if you **strongly agree** that the metaphor describes your school, or a major aspect of it, as it actually is.

Please feel free to add other metaphors which describe well your school, or a major aspect of it, as it actually is.

Turn over this sheet and respond to every item.

My school is a/an:

1.	Culture	SD	D	N	A	SA	14.	Military camp	SD	D	N	A	SA
2.	Herd	SD	D	N	A	SA	15.	Ghetto	SD	D	N	A	SA
3.	Family	SD	D	N	A	SA	16.	Artist's palette	SD	D	N	A	SA
4.	Forum	SD	D	N	A	SA	17.	Machine	SD	D	N	A	SA
5.	Exhibition	SD	D	N	A	SA	18.	Expedition	SD	D	N	A	SA
6.	Orchestra	SD	D	N	A	SA	19.	Team	SD	D	N	A	SA

(Remember to describe your image of your school as it actually is)

7.	Hospital	SD	D	N	A	SA	20.	Traffic jam	SD	D	N	A	SA
8.	Creche	SD	D	N	A	SA	21.	Negotiating area	SD	D	N	A	SA
9.	Museum	SD	D	N	A	SA	22.	Prison	SD	D	N	A	SA
10.	Garden	SD	D	N	A	SA	23.	Olympic Games	SD	D	N	A	SA
11.	Mental strait-jacket	SD	D	N	A	SA	24.	Living organism	SD	D	N	A	SA
12.	Shopping mall	SD	D	N	A	SA	25.	Theatre	SD	D	N	A	SA
13.	Beehive	SD	D	N	A	SA	26.	Labour ward	SD	D	N	A	SA

Other metaphors which describe my school well, as it actually is, are:

Appendix F

Images of Schools through Metaphor - Ideal (ISMI)

The power of metaphor is such that we become conscious of likenesses between what might be regarded as fundamentally different things. There is a claim that our thought processes are very largely metaphorical in nature, and, indeed, that the metaphors we use not only reveal something of how we think but also actually shape our behaviour.

The questionnaire employs metaphor as a tool to reveal something of the images teachers have of their schools **as they would be ideally or as they would prefer them to be.**

On the reverse side of this sheet is a list of metaphors, some of which might enable you to provide an image of your school, or a major aspect of it, **as it would be ideally.**

Please indicate the extent to which you agree or disagree that each metaphor describes accurately your school (or a major aspect of it) **as it would be ideally.**

Indicate your response by **circling**:

SD if you **strongly disagree** that the metaphor describes your school, or a major aspect of it, as it would be ideally;

D if you **disagree** that the metaphor describes your school, or a major aspect of it, as it would be ideally;

N if you **neither agree nor disagree** that the metaphor describes your school, or a major aspect of it, as it would be ideally **or are unsure**;

A if you **agree** that the metaphor describes your school, or a major aspect of it, as it would be ideally;

SA if you **strongly agree** that the metaphor describes your school, or a major aspect of it, as it would be ideally.

Please feel free to add other metaphors which describe well your school, or a major aspect of it, as it would be ideally.

Turn over this sheet and respond to every item.

My school, **ideally**, would be a/an:

1.	Culture	SD	D	N	A	SA	14.	Military camp	SD	D	N	A	SA
2.	Herd	SD	D	N	A	SA	15.	Ghetto	SD	D	N	A	SA
3.	Family	SD	D	N	A	SA	16.	Artist's palette	SD	D	N	A	SA
4.	Forum	SD	D	N	A	SA	17.	Machine	SD	D	N	A	SA
5.	Exhibition	SD	D	N	A	SA	18.	Expedition	SD	D	N	A	SA
6.	Orchestra	SD	D	N	A	SA	19.	Team	SD	D	N	A	SA

(Remember to describe your image of your school as it would be ideally)

7.	Hospital	SD	D	N	A	SA	20.	Traffic jam	SD	D	N	A	SA
8.	Creche	SD	D	N	A	SA	21.	Negotiating area	SD	D	N	A	SA
9.	Museum	SD	D	N	A	SA	22.	Prison	SD	D	N	A	SA
10.	Garden	SD	D	N	A	SA	23.	Olympic Games	SD	D	N	A	SA
11.	Mental strait-jacket	SD	D	N	A	SA	24.	Living organism	SD	D	N	A	SA
12.	Shopping mall	SD	D	N	A	SA	25.	Theatre	SD	D	N	A	SA
13.	Beehive	SD	D	N	A	SA	26.	Labour ward	SD	D	N	A	SA

Other metaphors which describe my school well, as it would be ideally, are:

Appendix G

Images of Schools through Metaphor (ISM) Draft
Actual

The nature of metaphor is such that we become conscious of likenesses between fundamentally different things. There is a claim that our thought processes are very largely metaphorical in nature, and, indeed, that the metaphors we use not only reveal something of how we think but also actually shape our behaviour. Metaphors abound in the English language - mountains are given faces and feet as though they were people; so too chairs are given legs, arms, seats and backs.

The research project for which this questionnaire was designed is attempting to employ metaphor as a tool to reveal something of the images teachers have of their schools as they **actually are**.

Attached is a list of metaphors, some of which, separately or collectively, might enable you to provide an image of your school (or an aspect of it) as it **actually is**.

Please indicate the extent to which you agree or disagree that each metaphor describes accurately your school (or an aspect of it) as it **actually is**.

Indicate your response by circling:

SD if you strongly disagree that the metaphor describes your school as it **actually is**;

D if you disagree that the metaphor describes your school as it **actually is**;

N if you neither agree nor disagree that the metaphor describes your school as it **actually is** or are not sure;

A if you agree that the metaphor describes your school as it **actually is**;

SA if you strongly agree that the metaphor describes your school as it **actually is**.

Please feel free to add other metaphors to the list and to indicate the extent to which you agree or disagree that they describe your school as it **actually is**.

Your image of your school as it **actually** is:

1.	Quest	SD	D	N	A	SA	21.	Story-telling system	SD	D	N	A	SA
2.	Computer network	SD	D	N	A	SA	22.	Counsellor's lounge	SD	D	N	A	SA
3.	Circus	SD	D	N	A	SA	23.	Military camp	SD	D	N	A	SA
4.	Culture	SD	D	N	A	SA	24.	Ghetto	SD	D	N	A	SA
5.	Herd	SD	D	N	A	SA	25.	Political system	SD	D	N	A	SA
6.	Family	SD	D	N	A	SA	26.	Cocoon	SD	D	N	A	SA
7.	Forum	SD	D	N	A	SA	27.	Artist's palette	SD	D	N	A	SA
8.	Factory	SD	D	N	A	SA	28.	Machine	SD	D	N	A	SA
9.	Exhibition	SD	D	N	A	SA	29.	Laboratory	SD	D	N	A	SA
10.	Orchestra	SD	D	N	A	SA	30.	Expedition	SD	D	N	A	SA

Please remember to describe your image of your school as it **actually** is:

11.	Hospital	SD	D	N	A	SA	31.	Business	SD	D	N	A	SA
12.	Creche	SD	D	N	A	SA	32.	Monastery	SD	D	N	A	SA
13.	Museum	SD	D	N	A	SA	33.	Roulette wheel	SD	D	N	A	SA
14.	Garden	SD	D	N	A	SA	34.	Team	SD	D	N	A	SA
15.	Mental strait-jacket	SD	D	N	A	SA	35.	Church	SD	D	N	A	SA
16.	Supermarket	SD	D	N	A	SA	36.	Traffic jam	SD	D	N	A	SA
17.	Shopping mall	SD	D	N	A	SA	37.	Negotiating area	SD	D	N	A	SA
18.	Bubbling cauldron	SD	D	N	A	SA	38.	Prison	SD	D	N	A	SA
19.	Beehive	SD	D	N	A	SA	39.	Court room	SD	D	N	A	SA
20.	Living organism	SD	D	N	A	SA	40.	Olympic Games	SD	D	N	A	SA

Appendix H

Instructions:

You have just completed the actual form of Images of Schools through Metaphor (ISM). It is important that you reveal what sort of image you had in mind when you indicated that your school was or was not depicted by the various metaphors.

For the following 40 items please select that alternative, either a) or b), which **most nearly describes** the image that you had of your school as it actually is.

Please circle a) or b) for each item. Please do not circle both.

If neither alternative for any item depicts adequately the image that you had, please supply a sentence that does so in the line provided after the b) alternative in that item.

1. A quest is
a) an on-going search for goodness, self and social improvement, and other similar worthwhile goals.
b) a foolish pursuit of unreachable gaols.

.....

2. A computer network is a system which enables people:
a) to process information in order to enhance their understanding of a variety of things.
b) to establish devices which will regulate what will be done, how it will be done, when it will be done and to what standard it will be done.

.....

3. A circus is a place characterized by:
a) excitement and entertainment provided by skilful performers within a tightly structured framework.
b) the disorganised and rowdy antics of clowns and animals despite the efforts of a whip-cracking ringmaster.

.....

4. A culture is:
a) an upper-class flirtation with, or addiction to, the visual and performing arts and other such trappings of privilege.
b) a system of artifacts, values, norms, beliefs and assumptions which guide members' thoughts and actions.

.....

5. A herd is a group of beings:
a) which follows directions of superiors, ultimately to satisfy needs of those superiors.
b) which lives as a mutual support community, united by a set of common characteristics.

.....

6. A family is a:
a) relatively small unit which lives together and pursues relatively common goals in an harmonious fashion.
b) collection of people who bicker with and abuse each other despite being related in some way.

.....

7. A forum is characterized by:
a) public criticism, conflict and invasion of privacy.
b) open and fearless communication through which all those present seek knowledge and understanding.

.....

8. A factory is a building in which:
a) all-important, homogeneous, inanimate objects roll off an automated assembly line.
b) technology and labour are engaged in producing in an effective and efficient way valuable goods which sustain and enhance life.

.....

9. An exhibition is:
a) when exhibitionists display their talents in public places, often infringing upon the rights of others.
b) display in an aesthetic setting of people's finest works.

.....

10. An orchestra is a collection of:
a) musicians regimented by a conductor to reproduce a composer's musical score.
b) dedicated people, perhaps of all ages, who have united, together with their variety of instruments, to create music.

.....

11. A hospital is a:
a) large impersonal building in which sick people are treated with medicines and where others wait to die.
b) centre where professionals are dedicated to enhancing total wellness among the community.

.....

12. A creche is a place where young people:
a) are minded while adults are enabled to pursue important activities .
b) acquire a variety of skills and attitudes which enable them to enjoy a worthwhile and happy present and future.

.....

13. A museum is:
a) an exciting, informative place in which valuable and intesting objects are maintained and displayed.
b) a dingy, silent place in which dusty relics of the past are kept.

.....

14. A garden is a:
a) peaceful haven of colour, perfume, growth and life.
b) a place where a gardener is the sole decision-maker who selectively manures plants, poisons weeds and cuts out dead wood.

.....

15. A mental strait-jacket is a device to:
a) brainwash people to accept a particular ideology.
b) facilitate the full development of young people's minds through a proper focus on valued processes and outcomes.

.....

16. A supermarket is a:
a) large impersonal market where a variety of daily needs can be purchased at competitive prices.
b) a place which enables people to easily acquire the essentials of life in a convenient setting.

.....

17. A shopping mall is made up of service outlets which:
a) satisfy a very wide range of consumer needs, including entertainment and social needs, in an attractive one-stop venue.
b) are in extreme, cutthroat competition with each other to sell people things they don't always want or need.

.....

18. A bubbling cauldron is a vessel in which:
a) people are treated as though they were vegetables and other ingredients to be reduced to an unattractive and unpalatable stew.
b) activity is vigorous in order to assist the people involved to achieve their potential.

.....

19. A beehive is a container within which:
a) beings work enthusiastically and effectively in order to promote the common and individual good.
b) unthinking beings are enslaved in activities which are monotonous and of little worth.

.....

20. A living organism is:
a) an organised open system which selectively takes inputs from its environment and transforms them into outputs of greater value.
b) something which lives out its life-cycle in an unthinking, genetically programmed way.

.....

21. A story-telling system:
a) is a valuable informal network which enables people to learn what is of value and importance.
b) is a grapevine of gossips who should mind their own business.

.....

22. A counsellor's lounge is a venue within which:
a) rules which will guide people's behaviour and performance are laid down clearly.
b) people begin to understand and make sense of their world.

.....

23. A military camp is:
a) a secure compound in which highly trained personnel are prepared to follow orders unquestioningly.
b) a refuge in which people can concentrate upon achieving their individual and group potential so that they can contribute fully to the development of their country, region or cause.

.....

24. A ghetto is an area in which:
a) inhabitants feel they have a great deal in common with others and are able to share in the mutual support system which exists.
b) minority people are herded together in order to ensure their continued lowly station in life.

.....

25. A political system is an arrangement by which:
a) powerful people are able to exert their authority over others.
b) decisions can be made, communicated and implemented in a manner designed to enhance the common good.

.....

26. A cocoon is:
a) an unbreachable binding which encases and limits youngsters.
b) a supporting refuge which allows the young time to grow, but which thins progressively until it yields eventually to an emerging beautiful creation.

.....

27. An artist's palette is a surface upon which:
a) the raw materials of a piece of art are prepared.
b) discrete and already beautiful entities lose their individuality.

.....

28. A machine is:
a) an inanimate object composed of separate parts designed and built to perform a uniform and repetitious task at the press of a button.
b) an elegant, well-oiled product of design and technology which can enrich and simplify our lives.

.....

29. A laboratory is:
a) a place for invention and progess.
b) a setting for impersonal calculated experimentation, control groups and manipulation of variables.

.....

30. An expedition is:
a) a planned but exciting and risky probe into an uncertain future.
b) a weary struggle against odds towards a goal of dubious worth.

.....

31. A business is:
a) an organisation designed to produce a product or provide a service in order to generate a payoff for stakeholders.
b) concerned with bringing valuable resources together in such a way that human happiness can be maximised in a sustainable way.

.....

32. A monastery is:
a) a haven in which dedicated people of like persuasion seek mutually agreed goals in an harmonious way.
b) dungeon-like and promotes obsessive pursuit of a particular faith within a strict framework of rules.

.....

33. A roulette wheel is a device which:
a) efficiently sorts 'winners' and 'losers'.
b) enables people to engage happily and securely in a game of chance.

.....

34. A team is a collection of people:
a) with common goals who combine their talents and energies in order to ensure that all members succeed in the task at hand.
b) who, dominated by a coach or manager, are frightened or unable to act as independent agents in pursuing goals.

.....

35. A church is a place within which:
a) people seek inner peace through earthly and other forms of support, comfort and guidance.
b) ancient rites are perpetuated and people are harangued and given promises which may never be fulfilled.

.....

36. A traffic jam is an event which, like:
a) a breakdown in communication, causes tempers to fray, time to be wasted, and deadlines to be missed.
b) the lull before a storm, enables people to pause in their rush and bustle to consider things beyong the moment.

.....

37. A negotiating area is one where:
a) people engage in close debate in order to press their particular claims at the expense of the claims of opponents.
b) considerate efforts are made by all parties to accommodate the particular needs of themselves and of others.

.....

38. A prison is a secure place within which;
a) dangerous people are punished and prevented from contaminating others of better character.
b) society's appointed agents attempt to assist their charges reach their full potential as human beings.

.....

39. A court room is a place where:
a) society's authority is imposed on others.
b) truth is sought and society and its members are protected.

.....

40. The Olympic Games is an event which:
a) enables everybody present to compete in fair competition to strive and achieve their very best.
b) brings together the elite few to flaunt their giftedness to the less fortunate masses.

.....