

**LINKS BETWEEN PEOPLE
AND
THEIR ENVIRONMENT**

**A study of school principals
in the architectural settings of their
schools**

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**A dissertation submitted in partial fulfilment of the requirements
for the degree of Master of Education**

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October 1997

ABSTRACT

This study was generated from the research question: "Could one's work-related role-personality indicate one's building-related needs?". The subjects were the principals of Tasmanian schools, the settings were the school buildings, and the substance was the role-behaviour of the principals and matters related to a new taxonomy of building-related needs.

Ball's classifications of the micro-political styles of leadership of school principals, to which the educative style was added, were adopted for this study. Ching's classifications of spatial organisations were utilised to describe the settings of the school and a theoretical argument was developed in support of the concept of the taxonomy which was based on the structure of Porter's adaptation of Maslow's hierarchy of needs. Therein, psychological security has been linked to identification with place, territoriality, and control through environmental competence. The psychosocial need for affiliation has been linked to the 'affordances' of the environment, and control through proxemics. The esteem needs have been interpreted as the preferred expression of status in the aesthetic style of the school. Autonomy has been linked to the control of one's needs for privacy for one's private office and self-actualisation has been linked to the person/environment fit between the principal and the school as the setting for leadership behaviour.

All five styles of leadership were classified among respondents and significant correlations were found between leadership style and building-related needs. Emergent matters of some significance affecting the future planning of new schools and the future amelioration of excess stress for principals within the architectural settings of the schools have been highlighted.

ACKNOWLEDGEMENTS

I wish to acknowledge with thanks the invaluable advice and guidance of Professor R. J. S. (Mac) Macpherson as supervisor, during the early conduct of this study.

Similarly a debt of gratitude is owed to Dr. Neville Grady for his assistance in instructing me in the utilisation of StatView and other methods of statistical analysis of data and even more so for his willingness to take on the role of supervisor at the most demanding final stage of this research.

Thank you Neville.

DECLARATION

I certify that this dissertation contains no material that has been accepted for the award of any other degree or diploma in any institute, college or university, and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due reference is made in the text of the dissertation.

A handwritten signature in black ink, appearing to read 'P. Kaye Clark', with a stylized, cursive script.

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CHAPTER ONE

INTRODUCTION

Tell me what you like and I'll tell you what you are.

John Ruskin 1819-1900

1.0 PREAMBLE

Can one judge people simply from their likes or dislikes as John Ruskin contends in the above quotation? Has Ruskin¹ made a bold statement that is impossible to support? It would certainly seem an improbable boast, given the immense variety of personalities with the multiplicity of possible foci of likes and dislikes among the population of this world. Common sense must support the null hypothesis that; 'One cannot judge a person by their preferences alone'. Nevertheless, Ruskin's statement, if verified, could be reworded for this dissertation to read; 'Tell me what building-related preferences you have and I'll tell you what style of leader you are'. Thus, in some small way, this dissertation may test the veracity of Ruskin's claim.

The actual research question on which this dissertation has been based is; 'Could one's work-related role-personality indicate one's building-related needs?'. In order to test that question, which is elaborated upon later in this chapter, all school principals in Tasmania were invited to complete a specially developed questionnaire. That instrument has been an attempt to assess the micro-political style of leadership of each principal, in accordance with Ball's classifications (1987) and Macpherson and Vann's descriptions

¹ Ruskin, although not an architect, has had a strong influence on both the student and practitioner of architecture through his first work, the *Seven Lamps of Architecture*, since its publication in 1849. The principles he promoted therein were; Sacrifice, Truth, Power, Beauty, Life, Memory and Obedience, few of which, to the twentieth century reader, would appear to have any obvious connection to architecture. However, Ruskin forcefully argued his architectural interpretations of those principles throughout his life and became renowned as a critic of both architecture and art.

(The Penguin Dictionary of Architecture, 1980, pp. 271-272)

(1995). As well, the principals were invited to indicate their preferences regarding a selection of building-related needs that had been developed by this researcher. As the basis for those items, Porter's adaptation of Maslow's hierarchy of needs (Owens, 1991) was utilised as the framework within which a taxonomy of building-related needs was developed.

1.1 BACKGROUND

The question of whether or not we have a psychological relationship with our built environment has been a latent concern of this researcher since primary school days when her well written but impersonal description of the attractive decor of the family home was rejected outright by the school principal. "This is a house, not a home! Where are your favourite places for reading or playing with friends? Where does the family get together and talk or play games? Where do you do your homework?" As may be inferred from such accuracy of recall after so many years, the effect at the time had been devastating, and even now the feelings of puzzlement that followed his criticism come readily to mind.

Many, many years later, in the first year of University as a mature student, a reference book was introduced to the researcher that provided positive reinforcement for the following personal beliefs that had developed with her maturity. "A house or a home is for living in, not looking at! A workplace needs to facilitate patterns of work, not hinder them. Why can't one's shelter also provide pleasure, even delight, to ease the burden of one's daily tasks that can so easily become chores if undertaken in an uncomfortable, gloomy place?" The book in question; 'A Pattern Language' by Alexander and others (1977), was an inspiration to the student of architecture, introducing a new language to enable people to design a pattern of living or work spaces seemingly guaranteed to suit their needs. Here was a bible for the

professional; a catalogue of user-friendly spatial types, built or introduced elements, and a series of important connections that, once utilised, would reduce the possibility of one emulating the tendency of some notable architects to design buildings that may have been lovely to look at, but which were hopeless as a long term setting in which to live or work.

The second half of the twentieth century has seen a significant number of housing developments fail after “the complete breakdown of social life within the buildings (possibly) because of the experimental nature of their planning or simply from bad design” (Clark, 1994, p. 3). The ensuing high levels of vandalism and violence has usually led to their abandonment and eventual demolition. Some schools have also faced the same problems of violence and vandalism.

During the same period, in spite of these breakdowns, it has been common for people to demonstrate vociferously to stop the demolition of historic buildings or to prevent the development of public open spaces. Other people during this period, have acted with equal passion to carry out the disputed works by stealth. Thus, historically important buildings have been demolished and trees bulldozed in the middle of the night to avoid the dreaded protesters.

Why is it that some people feel so strongly about certain places when others have no feelings about them at all? Can it be assumed that these actions are simply indicators of the lack of conformity of values among the populace? Maybe so, but then why all the fuss in the first place? Could it be that there really is a psychic bond between certain people and certain physical environments?

The 1960s and 1970s saw a surge of interest in the relation between behaviour and the physical environment among professionals from diverse fields who shared that interest. During that period, a plethora of research projects was undertaken, resulting in the publication of some works that remain classic references today. Few of the theories established at that time, that are relevant to this study, have been overturned or changed significantly by more recent studies.

1.2 THE RESEARCH QUESTION

A number of questions have emerged from the long-term, personal preoccupation of this researcher with people and their physical environment;

- What idiosyncratic building-related needs do people have?
- How and why do they vary from person to person?
- Is there a predictable relationship between people and their physical environment?
- If so, then on what 'aspect' of people does that relationship depend?
- Is the most important factor one's personality?
- Could one's work-related role-personality (therefore) indicate one's building-related needs?
- Is there a building type that would best facilitate the fulfilment of one's building-related psychological needs?
- When problems arise from within one's social environment, can the opportunities provided by the architecture ameliorate any resultant stress?

While all of the above are inter-related and thus pertinent to this study, the primary generator of this dissertation is the research question; 'Could one's work-related role-personality indicate one's building-related needs?'. The

concept of role-behaviour has been adopted as the means by which to identify the work-related role-personalities of the school principals who form the subjects of this study. In accordance with Ball (1987) and Macpherson and Vann (1995), such idiosyncratic role-behaviours are perceived to be the visible expressions, or manifestations, of the leadership styles (thus role-personalities), of those school principals.

Consequently, the aim of this research is to assess the leadership styles of a sample of school principals and a limited number of their building-related needs and preferences. A subsequent aim is to test for a correlation between a principal's leadership style and his or her building-related needs. The initial hypothesis made was that, for optimum performance, a good 'fit' is required between the leadership behaviours of a school's principal and the physical environment in which those leadership activities take place. This dissertation is the first step towards testing that hypothesis.

1.3 IMPORTANCE OF THE RESEARCH QUESTION

Currently a significant number of school principals are requiring stress leave or opting for early retirement as a consequence of job pressures. According to Grady and others (1994), the tasks of Australian school principals are being complicated by their perception that they are being required to be "politicians, statisticians and magicians" (p. 30) and many are working "between 46 and 50 hours per week, and some in excess of 65 hours" (p. 21).

Assessment of the leadership styles of school principals according to their micro-political behaviour, may well contribute to a better understanding of their individual needs (other than their building-related needs) than currently exists. It is to be hoped that such deeper understanding may lead to

improved stress-relieving strategies.

While it is not contended that the school buildings are generally causing stress (even though some do); "the already stressed person in a poorly designed environment that fails to provide opportunities for the utilisation of various stress-relieving processes, will (in accordance with Zimring's theory) adopt intrapersonal coping strategies that may (even) result in the abandonment of the task undertaken" (Clark, 1994, p. 7).

Determination of the nature of the building-related needs and preferences of school principals, through the questionnaire that has been developed for this dissertation, will certainly benefit the future planning of new and altered schools, whether or not a correlation with leadership style is found in the final analysis.

Literature search thus far has failed to find any research project that has attempted to assess and link both leadership style and building-related needs. Therefore it may be assumed that this study will add new information to the body of knowledge available at this time.

1.4 RESEARCH STRATEGIES

A questionnaire consisting of 35 items, in addition to items requesting demographic data, was constructed specifically for this research. In the absence of any known existing instrumentation to assess the items relating to the chosen constructs, it was necessary to develop a supporting argument from the literature.

Theoretical support was available for assessment of the leadership styles of school principals in the form of the micro-political styles of leadership defined

by Ball. His matrix, "Forms of participation and types of talk in school decision making" (1987, p. 124), with the addition of subscale items relating to educative leadership, generated all items in the questionnaire that related to leadership style. All of these items were worded repetitively, using the introductory statement: "Leaders need to...", in an attempt to ensure consistency of interpretation.

Initially it was intended to probe deeply into a broad range of preferences (of the school principals) that would relate directly and exclusively to the spatial organisation (plan) of schools. To this end the classifications of Ching (1979) were utilised. However, the ideal plan of a new school is generated more effectively from the overall needs of the students and staff to suit the teaching / learning programme, rather than just from the needs of the principal. Therefore this aspect of the research was eventually limited to five items that appropriately linked to the taxonomy of building-related needs.

The preliminary design of a physical environment (by an architect) usually begins with a complex, in-depth determination of the spatial, sensory, thermal comfort and lifestyle needs of the future occupants or users. With such an established emphasis on needs and this researcher's preoccupation with the often unacknowledged psychosocial needs, it therefore seemed logical to utilise something like Maslow's hierarchy of needs (1970) as the framework for the classification of building-related needs in this research. Porter's adaptation of the Maslow model (Owens, 1991) proved to have the most suitable structure for this study, although several other reinterpretations have been cited where appropriate.

The theoretical constructs that emerged from the literature-based arguments referred to above and detailed in chapter two, generated the questionnaire

items attempting to assess the building-related needs, preferences, and opinions of school principals. Rather than use the word 'need', due its perceived multiple interpretations in this context, the introductory phrase: "I prefer..." was used repetitively in many building-related 'needs' items in an attempt to gain consistency of interpretation. Any implication of 'need' in this dissertation, therefore, has been purely that of this researcher and no attempt has been made to determine that the preferences sought, might or might not be considered as 'needs' by the respondents. Neither has there been any attempt to treat the 'building-related needs' items as actual measures of the relevant constructs.

Tasmania is an island (or for the purist, one large and many small islands) that provides a convenient boundary confining a manageable sized research population. Therefore a decision was made to survey the principals of all Tasmanian schools. Responses were collated and the emergent sample was validated as being quite representative of the population. An iterative process of statistical analysis of scale items was undertaken of all responses that had been received within a defined period. As well, qualitative data were assessed to identify recurring themes.

1.5 CONCEPTUAL FRAMEWORK

"Man's attempts at need satisfaction always involve him in interactions and exchanges with his physical environment" (Proshansky and others, 1970, p. 174). The school principals who form the subjects of this dissertation, similarly, must interact with their physical environment. Like the concept of the teacher who can teach in a paddock, thus colloquially identifying the 'independence from place-specificity' of the act of teaching, the act of administration may be deemed likewise, except for one thing. The administrative functions of school principals necessarily require 'a place' as

they must usually control the utilisation and maintenance of whatever buildings (or paddocks!) constitute the school setting itself.

From the architect's viewpoint, which is the position of this researcher, the school buildings in which the principals work should, ideally, provide an appropriate setting to enable optimum performance of their administrative activities. Notwithstanding the equally important needs of the other staff and the students, which do not form any part of this study, a determination of the preferences and needs of principals generally, might assist in the future design of schools to enable provision of a reasonable person/environment fit. According to Lang (1987, p.132), it is "appealing to believe that there is a correlation between personality and tolerances for fits and misfits between the environment ... (and its affordances)". The research question of this dissertation may be seen as a derivative of this comment. It is certainly a variant thereof.

Nevertheless, the principals of schools (through their role-personalities as assessed from their leadership styles) form the 'subjects', the school buildings form the 'settings', and their building-related psychosocial needs form the 'substance' of this dissertation. The conceptual framework thereof, which is outlined briefly in this section, is discussed at length in chapter two.

1.5.1 *Leadership behaviour*

Ball (1987) claimed that too little consideration was given in the literature, of the influence the individual personalities of principals exerted on their administrative behaviours. These idiosyncrasies, he claimed, could be recognised in their micro-political activities and social approaches to their leadership role. He classified four micro-political styles of leadership: the authoritarian, adversarial, managerial and interpersonal styles, and

furthermore, stated that one could realistically expect a variety of mixtures in the actual manifestations of the styles among the population. The educative style of leadership was included also. The educative classification (Macpherson and Vann, 1996) and Ball's 'types' were considered more compatible with the aims of this study than other classifications of leadership styles. The models described by Ball and Macpherson and Vann are described fully in chapter two.

1.5.2 *Classification of spatial organisations*

The physical settings of one's daily activities often pale into insignificance when one is faced with the stresses of work and interpersonal relationships. Nevertheless, all our behaviours take place in a physical setting, whether indoors or outdoors. Some have even argued that certain behaviours are place-dependent (Willems, 1977). It has also been claimed that certain buildings are more habitable than others (Izumi, 1970). Inappropriate or poorly designed buildings can inhibit or even 'control' behaviours to some extent. Therefore it was considered appropriate to include items relating to the design of school buildings in this study to assess their perceived suitability as the settings for the behavioural preferences and fulfilment (or not) of the psychosocial 'needs' of school principals that are also being assessed.

Ching's (1979) timeless, general classifications of the spatial organisations of buildings provided a broader and more representative framework than those plan types documented specifically for schools in the literature. His work has become a true classic and remains probably the best reference of its type available. His plan types include the linear, radial, centralised, and clustered spatial organisations. A fifth type of spatial organisation was included by this researcher to reflect the proliferation of scattered arrangements of buildings that have emerged through time on school sites

around the world. The five spatial organisations considered relevant to this study are discussed in detail in chapter two.

1.5.3 *Building-related needs based on Maslow's hierarchy*

The physiological importance of the physical environment in the provision of our shelter and comfort is generally accepted. It is less generally accepted that the buildings that provide the settings for our daily activities serve an important function also in the fulfilment of our psychosocial 'needs'.

Literature search has revealed few documents in which a range of building-related psychosocial needs have been linked to a cohesive theoretical framework. Maslow's hierarchy was used and adapted in the only relevant case found. Therein, Lang's (1987) presentation of the theories of Steele was limited in scope, whereas Lang's own interpretations, while relevant, nonetheless followed a sociophysical leaning, rather than the psychosocial matters addressed in this study. The structure of Porter's adaptation of Maslow's model (Owens, 1991) was ultimately chosen as the basis from which a taxonomy of building-related needs was developed for this study.

1.5.3.1 *Maslow's first level*

Assessment of the physiological or physical comfort needs was considered beyond the scope of this study. In keeping with Porter, it was assumed that the basic needs of food and shelter were being provided for the school principals who are its subjects. Nonetheless, the important role of the design of school buildings in the provision of the basic thermal, visual, aural and tactile comfort of the occupants is briefly discussed, but not assessed.

1.5.3.2 *Maslow's second level*

The security and safety needs were interpreted as a need for **control of stimuli within the school environment and legibility of its spatial organisation**. While the physical safety of persons within the school is

regrettably under threat in schools today, and notwithstanding that the design of buildings can address that problem effectively, the focus of this segment is restricted to psychological security.

The psychological importance of one's familiar physical setting, although often unacknowledged, may be linked to the formation of one's identity. In the school, as in the home or other workplace, the basis of one's role-related identity may be established. The limitations or opportunities provided by that physical setting may therefore restrict or enhance the development of that identity. This may result in some symbolic identification with place as the setting for certain repetitive behaviours or significant events and subsequent feelings of security or insecurity may develop within those places.

At the most fundamental level of security needs it has become evident that the individual needs to develop environmental competence (Lang, 1987). Thus, it may be important for the individual to be able to control environmental events; to have a choice within the layout of the building as to whether they have contact with others or not, to hear or see the activity of students and staff or not, and so on, in order to feel secure (Proshansky and others, 1970, pp. 175-176).

"Perception of the environment requires man to interpret the physical and social components of his stimulus field" (Beck 1967, pp. 18). The social component is, of course, other people. It is through acceptance of what an important role the social factors (other people) play within one's environment, that the combination of psychological and social needs (the psychosocial needs) are considered to be the most relevant form of 'need' for this taxonomy.

The relationship of whole communities with their environments, are part of the focus of anthropological study. From that source it is understood that the spaces within the physical environment that form the settings for our daily activities become a part of our personal territory to some degree. Thus it was considered appropriate to utilise anthropological terminology as used by Rapoport (1975).

1.5.3.3 Maslow's third level

The belongingness or affiliation needs, which may seem quite unconnected with the physical environment, have been interpreted as being achievable through **schoolwide interaction 'affordances' in the permeability of spatial boundedness**. The proposition, for this study, is that the openness or enclosure of classrooms or offices and the spatial organisation generally may affect the opportunities for social interaction amongst staff.

1.5.3.4 Maslow's fourth level

The esteem needs have been represented as **status, symbolically expressed in the aesthetic image of the school** in the belief that the existence of an appropriate architectural 'image' for one's school may contribute towards the fulfilment of a principal's esteem needs. The importance of symbolism is discussed with the matter of aesthetic expression, which is deliberately utilised in many cultures to represent the status of the person or organisation within the community.

1.5.3.5 Porter's additional level

The autonomy needs have been interpreted as **privacy needs demonstrated in the control of access to one's office**. Proshansky and others' claim that an important function of privacy is to "protect and maintain the individual's need for personal autonomy" (1970, pp. 173-183)

has been the major influence on the interpretation of this level of needs. Westin's four states of privacy and four related functions of privacy have been utilised as theoretical support (Proshansky and others, 1970, pp. 175-176).

1.5.3.6 Maslow's highest level

The self actualisation needs have been represented as related to **person / environment fit, measured by dependence or independence of environment**. Maslow's (1964) hypothesis concerning the differences between deficit-motivated and growth-motivated people has been discussed in this segment. While items pertinent to this level were included in the questionnaire, no attempt was made to actually measure the relative level of self actualisation of respondents. Such measurement, for this or any other 'level' in the hierarchy, would be beyond the scope of this research project.

1.6 STATEMENT OF LIMITATIONS

The scope of this dissertation has been necessarily limited by financial and temporal matters, and by the very nature of its typology. As well, the following project-specific limitations are noted:

- the study population has been limited to all school principals within the state of Tasmania (considered a manageable population)
- the voluntary nature of responses might have jeopardised the representativeness of the sample
- the experimental nature of the specially developed questionnaire without the security of a proven instrument was a risk to validity and reliability
- 'neutral', used as a scale to indicate 'either/or' responses, may be interpreted differently by respondents, e.g., as indicating 'no opinion'
- a decision was made to accept the classifications of leadership style

as set out by Ball (1987) and Macpherson and Vann (1995)

- not all school principals are leaders
- the minimal amount of recent literature cited as support for building-related needs, may be interpreted as a limitation. However the theories utilised herein from the substantial body of literature from the peak period of interest in environmental psychology around the 1970s, have not been overturned in the intervening years. This is seen as a strength by this researcher rather than a limitation.
- any consideration of physiological building-related needs in the questionnaire was considered beyond the scope of this dissertation,
- any attempt to assess the relative levels of security, esteem, affiliation, autonomy, or self-actualisation, of respondents was also considered beyond the scope of this dissertation.

1.7 DOCUMENT OUTLINE

The structure of the remainder of this dissertation is outlined in brief, below.

1.7.1 Chapter two - Literature review

The literature review, rather than incorporating a review of similar research projects, in this case constitutes the theoretical background of this dissertation which has been described in this introduction as the 'conceptual framework'. A theoretical argument has been constructed in chapter two in support of the 'constructs' from which questionnaire items were composed.

1.7.2 Chapter three - Method

The methodology for this dissertation has been described in some detail previously in this introduction under 'research strategies'. This chapter incorporates the development of the questionnaire, including both its quantitative and qualitative content and validation tests. The identification and selection of the research population, and the validation of the

representativeness of the sample are also included.

1.7.3 *Chapter four - Results*

The results of the quantitative data analyses from the returned questionnaires are presented in depth in chapter four. Included are tables of descriptive data from the scale items. Qualitative data, constituting comments from respondents have also been categorised according to recurring themes and included therein.

1.7.4 *Chapter five - Discussion and conclusions*

The significance and implications of the results of the questionnaire survey (undertaken for this dissertation), are discussed in the final chapter.

Furthermore, general conclusions are drawn and recommendations are made for future research.

CHAPTER TWO

LITERATURE REVIEW

2.0 PREAMBLE

Literature search failed to find any documents that addressed the actual focus of this study, which is an assessment of the leadership styles of school principals and their building-related needs, in order to test the research question. Therefore, the review of similar research projects that one might expect in this chapter has been replaced by a theoretical justification of the constructs and related items that have been utilised as the basis of the questionnaire.

2.0.1 *Theoretical background*

The human subjects chosen for this study are the principals of Tasmanian schools. The setting is the school itself and the primary concern, the substance, is the leadership behaviour and a limited number of the building-related needs of each subject.

When a new or altered school is being planned, the teaching and learning programmes are usually the primary generators of the spatial organisation. Thus, the needs of the administrative staff, including the principal, may conceivably take a lower priority. However, the principal and the school board/council may be part of the design briefing panel and may, in some cases, strongly influence the design. Nevertheless, the funding body and the architect tend to control the final outcomes. Once a school is established, the most usual situation is that the incumbent of the principalship changes from time to time so that a school that may have been planned, in part at least, for one style of leadership is then administered by another who may have quite different needs and preferences.

The conclusions reached in an earlier research project, are particularly valid for principals as the subjects of this study.

It has become apparent that people need to feel some sense of 'ownership' of place or 'belonging' to a community, to assist them to adjust and adapt to a new place of living, work or study. Psychological links need to form that may be likened to mild feelings of territoriality, or community-forming patterns of social behaviour may be attempted to gain that sense of belonging. If neither of these strategies is successful, the people may remain isolated, have difficulty in adjusting and be susceptible to pressure, conflict and stress (Clark, 1994, p. 43).

Even in situations where the principal has been established in the same school for many years, stress producing situations are common.

Recent decades have seen schools required to 'restructure' more often than is ideal, due to policy changes and the enforcement of budgetary constraints. These changes are always associated with increased pressure and conflict.

The transition period during which any need for change is acknowledged, strategies are formulated and approved, and the changes undertaken, is stressful for all concerned. The difficulty in acceptance of a fundamental change in policy enforced from outside, or the period during which a policy is formulated from within an organisation can be equally stressful as the initial period during the implementation of the proposed change.

Dennis Connors (1983, p. 15) noted that "There is growing evidence that the designed environment of schools may stress users of the facility both directly and indirectly." He referred to Zimring's (1981) definition of stress as being the result of dynamic interactions between persons and environment. This is consistent with the intentions of Christopher Alexander's paper (1967) in that stress is seen to occur when a misfit is perceived "between individual needs and environmental attributes" that is; when a goal is being thwarted (Clark, 1994, p. 5).

"The coping processes used to resolve stressful situations *are affected by the design of the environment*" (Connors, 1983, p. 16). This statement succinctly defines the rationale that has generated this research project, in which the most important participants are the school principals.

Mother (calling upstairs in the morning):

It's time to get up for school.

Chris: *I'm not going to school!*

Mother: *Why not?*

Chris: *Because everybody hates me - the teachers, the kids, the janitor - they all hate me!*

Mother: *You have to go. You're the principal.*

from Fullan and Steigelbauer (1991)

The principal's position, far from being an enviable 'lot', may at times be fraught with the exigencies of personality clashes; stress from social and psychological pressures; stress from workload; and the pressures of handling day-to-day work contingencies. In these matters the principal's role is often assumed to be the same as any other position of similar responsibility in the public service, politics, commerce or industry. The school principal, however, may be the focal point of criticism (or at least pressures to act); from students, staff, parents, the community and the employing/funding authority, thus being held accountable to a broader range of stakeholders than most others in a range of disciplines. Not all principals are able to cope with those sorts of stresses, and some "have been known to retreat entirely into their rooms or occupy themselves with strange or obsessively mundane tasks" (Winkley, in Ball, 1987). The individuality and personality of the principal, although major influences on role behaviour, are not often considered in depth in studies to do with educational administration. The focus tends rather to be on the procedures, processes and preferred outcomes of strategies relative to the organisation.

A common focus for theoretical analysis of educational administration has traditionally been the example of industrial management, particularly that of

the factory. The theories of Fayol and Taylor, for example, were influential for decades after their introduction early this century and perhaps they still are. Another pertinent example is that of the German theorist, Weber, whose bureaucracy hypothesis only became available to the English-speaking world through translation after the second world war. His theories, as evidenced in this discussion, remain influential today (more than half a century later), in the realms of the public service and particularly in education (in Owens, 1991 and Ball, 1987).

The need for theoretical analysis of the uniqueness of the school situation has been addressed more directly over the last decades of the twentieth century. Nevertheless, Ball (1987) claimed that the existing literature that prescribed and reflected on the changing role of the school principal failed to provide a "sufficient basis" for analysis of the "street realities" of the role. Ball argued that little attention had been paid to the social and dynamic role of the leader and that few reflected what Greenfield described as "the actual logic-in-use by organisational participants" (in Ball 1987, p. 81). Burgess (in Ball, 1987, p.81), described the principal as the "critical reality definer" in the school. Accordingly, the task behaviour relative to whether the principal leads, is led, or avoids the responsibilities of decision-making altogether, is taken to be a vital factor in the formation of the micro-political climate of the school.

The manner in which a principal enacts his or her role is considered here to be dependent on the individual's personality, balanced against a subjective interpretation of what the role entails; the expectations of those who are affected directly by the actions of the principal; the past enactment of the role by previous incumbents; as well as the present context of conditions and constraints. Getzels defined a general equation to express this hypothesis:

$B = f(R \times P)$, wherein observed behaviour (B), is considered to be a function (f) of institutional role (R), and the personality (P) of the role incumbent (in Owens, 1991, p. 69).

The personality of the individual can thus be assumed to have been implicated with the formal role prescription, individual role perceptions and the expectations of others (including teachers, parents and local education authorities) in Ball's (1987) behavioural analyses in his chapter on "the politics of leadership". Using citations from selected case studies, he classified the task behaviours of a number of leaders from the descriptions given in their own words and those of their teachers. From those insights, Ball defined three main styles of leadership "in the spirit of Weber's ideal-types". These were: the interpersonal, managerial and political styles, which latter was subdivided into the adversarial and authoritarian styles. Ball nevertheless acknowledged that individual interpretations of the leadership styles would differ as much as their actual enactment would vary and intermingle stylistically according to each contextually unique interaction of person with environment. Ball's observations are summarised in the next three sub-sections.

2.1.1 *Interpersonal*

The interpersonal style of leadership is seen as "typical of the mobile and visible head". These mobile and visible principals tend to prefer face-to-face negotiations with staff and tend to create a bond of "mutual obligation". The principal may see the role as one of "protector" in which case staff are castigated in private but publicly supported. Thus, a relationship of trust is built up with the relative autonomy of staff usually respected and ensured.

The interpersonal principal's office door is often either symbolically, or

actually, open at all times. This accessibility is an important facet of the style. Through respect shown for an individual's ideas and high consideration of their feelings, satisfaction of staff needs and their subsequent loyalty ensure the maintenance of organisational stability. As well, these principals often teach more than the other types of leaders. Their role is thus seen by some theorists as that of the "senior professional".

Lobbying, negotiations, "sounding out ideas" and gathering opinions is usually done informally. Meetings are used for discussions, but decisions are rarely made by vote. The communication patterns are seen to be very open, but when analysed, may be found to be more effective 'bottom-up' forms of communication than 'top-down' ones. The interpersonal principal often does not communicate the processes by which a decision is made, even on the matters so freely, but informally discussed with individuals. Decisions are usually made by the principal, although in some cited cases individual staff requests are rarely denied. For the staff, however, it is equally rare for them to have any impact or involvement in "policy setting" or decisions regarding the overall running of the school. Ball saw this dichotomy as "accessibility (that) is matched by exclusion".

Well-developed social skills are essential for the interpersonal style leader who is often seen as charismatic. However, according to Weber "charismatic authority is inherently unstable" (in Ball, 1987, p. 95). Also, when considering this reliance on the inspiration of the principal, with decisions made by private negotiations, Weber saw this style as an "irrational form of leadership".

The second style identified by Ball seems to be the complete antithesis of the interpersonal style of leadership. The emphasis in the managerial style is on

the 'task' through positions in bureaucratic processes rather than the people-centred 'consideration' of the interpersonal style.

2.1.2 *Managerial*

The managerial style of leadership according to Ball, demonstrates a primary concern with the channelling of information through established bureaucratic processes. Positions in the hierarchy are valued and their importance maintained. Roles and responsibilities of organisational participants are usually clearly documented in terms of reference and job statements. The aims and objectives of the school are also clearly documented. These are then used as the measure against which school performance is evaluated.

Decisions are made formally through discussions at meetings and with committees at the appropriate hierarchical level. The flow of communication is similarly channelled both from bottom-up and from top-down through a hierarchy of formal meetings and procedures. In complete contrast to the interpersonal style, contact is made under this style of leadership through "formal announcements or written memoranda". This style tends to emphasise impersonal processes which can be seen by subordinates as "dehumanised".

The bureaucratic model of management, with which this style is strongly aligned, is seen by Ball as often associated with democracy, yet "bureaucracy is a form of domination". The principal who utilises the managerial style is an individual, whose personal approach and ideologies can vary considerably and yet still be accommodated by the management system. The principal within this system can become invisible, a "desk-bound bureaucrat administering from behind the closed door of the office".

Dynamic and progressive or even ideological principals are also known variants of the type. However, in all cases the management itself is considered by Ball to be “ideologically neutral”. The management team ensures that the school is “run”, whether the principal is a dominant influence or not.

The managerial style leader may be seen as the specialist manager. Thus the principal becomes “an executive rather than a senior teacher”. Alienation of staff is likely to be common and there may be, in Taylor’s scientific management terms, a “separation of conception from execution”.

2.1.3 *Political*

In each of the sub-categories deemed political, Ball claims the “sense of the political is to the fore” even though the manifestations of the styles are disparate. In these typologies the leader recognises that the political processes are a “major element of school life”. In the first case, the adversarial leader legitimises the political element with the establishment of overt political processes. In the second case, the authoritarian leader rejects and tries to subvert the process and the political element, it is claimed, will become both covert and illegitimate.

2.1.3.1 *Adversarial*

The adversarial style of leader, relies heavily on the “vehicle of talk” and will both encourage and participate in public debate. This principal is usually accomplished in the art of using reasoned argument and persuasion. Open confrontation is not uncommon. The public arena may thus be seen as “a means to an end” in which the domination of the principal can be maintained. “Rows, battles and challenges”, according to Ball, become language associated with the processes of decision making.

The "ideological dimension" may be strong and the adversarial leader is often committed to the implementation of "new ideas" and to "change". Ball claims that the emphasis here is on discussions of "why" and "what" rather than on "how". The focus is thus taken away from the procedural and administrative matters that dominate the managerial style.

The processes of communication in the adversarial style appear to be relatively "unorganised". These principals rely on the advantages of territoriality, in that they will choose the time, the strategic place (which can be within the principal's domain, by invitation) and will dominate the discussion and often neutralise opposition. Opponents may be appeased, but can be made to feel "inadequate and inferior". Allies are cultivated and used, encouraged and rewarded. Both opponents and allies are recognised as part of the normal "competing interests" within the micro-political environment of the school.

Similarly visible and yet fundamentally different in approach to that of the interpersonal leader, the adversarial leader also prefers face-to-face contact with the individual. The main difference lies in this sort of leader's utilisation of the informal public forum and the openness of any conflict. It may be interpreted that the adversarial principal delights in the challenge of open confrontation without the evident sensitive consideration of the individual shown by the interpersonal principal who avoids open conflict and will demonstrate a preference to solve problems privately.

2.1.3.2 Authoritarian

At the heart of the authoritarian style of leadership is an "evident commitment to the status quo". The established procedures and practices of the

institution are rated highly and traditions are cherished.

The authoritarian style principal has an almost pathological abhorrence of confrontation. In spite of this, the primary concern of this leader is to "assert" whereas the adversarial leader will aim to "persuade and convince". Any potential opportunity for the "articulation of alternative views or the assertion of alternative interests" is avoided. Opposition is otherwise either disabled or ignored.

According to Ball, the emphasis is on manipulation and there is a reliance on "conscious deception as a method of organisational control". This is particularly evident in the processes of decision making. Contentious issues may be presented in meetings as "non-issues" or by manipulating the agenda so that they are left to the end when staff are tired and in a hurry to get away. Talk tends to be "stifled" and the principal's authority is maintained.

"Selective recruitment" is practised so there will be no 'boat rockers'. Staff members perceived as "difficult or uncooperative" in their opposition may be met with anger. Such anger may be interpreted as strategic by Christie and Geis from their study of Machiavellianism (in Ball, 1987, p. 111). With the stifling of opposition, micro-political activity becomes subversive and important deals are negotiated behind closed doors.

The authoritarian leader is presented by Ball as a "Machiavellian", and for these people the "size of the organisation and the privacy the individual enjoys within it are crucial" (Smith in Ball, 1987, p. 116). Thus a large school will ensure that the intentions of the Machiavellian leader will take a long time to become known. For these principals the privacy of their personal

office is also crucial. The office can be a haven where conflict may be avoided, a place from which they can emerge when appropriate, or a secure place for the previously mentioned negotiations.

An additional style of leadership has been promoted during the last decade through the Educative Leadership Project (Duignan and Macpherson, 1987). This typology was compared to the previous four micro-political styles in a study by Macpherson and Vann (1995), in which the educative leader was seen to follow a preferred individual style of leadership, utilising appropriate strategies from the other repertoires (just described) when necessary. Further descriptions of educative leadership behaviour and attitudes are included below.

2.1.4 *Educative*

The emphasis that characterises the educative style of leadership, is on the individual taking a consciously educative approach in the promotion and establishment of "value-based leadership" that is "educational in intent and outcome". An educative leader is more concerned with "right and wrong, justice and injustice, truth, aesthetics, and the negotiation of practical ideals in education" than the assertion of personal authority in micro-political in-fighting (Duignan and Macpherson, 1993, p. 10). The concept of "double loop learning" as defined by Schon and Argyris, is thus seen as essential for effective communication within the school (in Argyris, 1977). This process involves questioning and changing the underlying assumptions of "theories-in use" and the organisational norms that make their practical manifestations in behaviour and attitudes legitimate.

The organisational culture developed under an educative leader will be one that ideally; "promotes enquiry, values problem solving, welcomes criticism

and encourages participation and learning about organisational relationships" (Duignan and Macpherson, 1993, p. 27). It is also seen as important that the principal is one who is open to criticism and able to learn from mistakes.

Participation, cooperation and collaboration are preferred procedures, especially in relation to processes of decision making. Opposition and conflict management are seen as best handled by win/win negotiations. Rituals and ceremonies are established as part of the school culture and it is considered important to find common ground as the basis for motivation and commitment.

The role of the educative principal may be seen as that of coordinator, whose job is to empower rather than to control. Staff may then experience the coherence and productivity recounted in Duignan and Macpherson's cited case study, in that they; "just don't waste time any more trying to score points off each other" (1993, pp. 29-30).

2.1.5 *Summary*

In summary, the four micro-political styles of leadership described by Ball are:

- an interpersonal leader; who is mobile and visible, and for whom, it would appear, the rights and the dignity of the individual staff member are respected
- a managerial leader tends to focus on a bureaucratic model of management through meetings, committees, formal documentation and other formally structured processes
- an adversarial leader is one who tends to prefer face-to-face negotiation and open debate, including rows, battles and challenges,

- and who brings an ideological political dimension to the principalship
- an authoritarian leader tends to abhor confrontation, and yet may be assertive while subverting the 'real' issues.

The educative leader is held to promote an ideological stance that values the finding of common ground to establish commitment, win-win negotiations, and collaborative decision making.

All of the preceding descriptions of leadership styles, depict attitudes and behaviours that might form fundamental differences between school principals. It is suggested that those personality-based differences may be the factor on which any relationship (if found) with the building-related needs (presented later in this chapter) might depend. Many admirable personal qualities, such as vision, a sense of responsibility, energy, and self-confidence, for example, to name but a few, might generally be associated with the concept of leadership. These, however, were considered to be traits and attitudes that might be shared by most persons who possess leadership qualities, thus effectively negating their usefulness for this study.

*A plan is to some extent like an analytical contents table.
In a form so condensed that it seems as clear as a crystal
and like a geometrical figure. It contains an enormous
quantity of ideas and the impulse of an intention.*

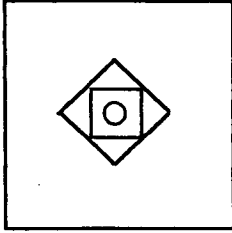
Le Corbusier, 1923 (in Curtis, 1987)

The buildings that form the physical environment of a school may vary considerably from school to school in concept, plan and three-dimensional form. Each school's design may differ through the architect's individual response to its context of geographical location, meso-climate or micro-climate, the predominant culture of the school population, the styles and purposes of the built neighbourhood, and through attempts to suit the educational aims and perceived needs of the users. According to Seaborne (1971), the school building typology evolved from the one-room village school of the mid-nineteenth century to a number of familiar plan types that remain within the designer's repertoire today. These include the 'central hall' plan, the 'verandah and quadrangle' plan, the 'corridor' plan, the 'compact' and 'open' plans. Among the many new schools that were constructed in various parts of the world during the 1950s and 1960s, the open plan type proliferated. This style emerged from both educational and architectural theories of the time. It also became popular for housing and commercial developments. However, the open plan generated controversy, and research teams investigated possible reasons for the extreme nature of the 'love it or hate it' reactions (of planners, administrators and users) to the style. This behaviour-related research continues to encompass disciplines as diverse as: education, architecture, environment behaviour studies, psychology and sociology.

around the world revealed a more comprehensive range of spatial organisations than those listed above. Therefore, for the purposes of this dissertation, the typical designs of school buildings have been classified according to the types of architectural spatial organisations defined by Ching (1979) that were considered relevant to schools. These include a centralised spatial organisation classification that might equally describe both the central hall plan and the verandah and quadrangle plan listed by Seaborne, and a linear spatial organisation that accurately describes the layout of the corridor plan school. The open plan school, as such, has not been included as a separate category because the layout of the activity zones or nodes therein, even though they remain physically open on one or more sides, may nevertheless conform (by definition) to any one of the spatial organisation types classified by Ching. Several examples of open plan schools found during this research programme may be classified as clustered spatial organisations, while others conform to the linear and central classifications (for example, Bennett and others, 1980).

Ching's radial style is commonly used in schools. The concept appears to be an evolutionary variation of the corridor plan to enable provision of similar conditions and connections between functions. When extensions are required or a new larger school is proposed, the radial plan provides an appropriate solution to address the same design criteria that generated the linear plan originally. A fifth style, identified by the present researcher, has been included in this study due to its evident proliferation on school campuses. This type has been designated a 'scattered' spatial organisation. Its addition provides scope for the inclusion herein of exemplars from the many primary schools, secondary schools, technical institutions and universities from around the world, that fulfil the basic criteria for this classification.

2.2.1 *Centralised spatial organisation*



A central, dominant space about which a number of secondary spaces are grouped (Ching, 1979, p. 205).

The centralised format for the plan of a school can be related directly to the early British central hall plan as described by Seaborne (1971). The layout is believed to have developed from a need for greater accommodation in schools and from a reduced need for the headmaster to observe pupil-teachers. In England, these relatively untrained teachers were being replaced by student-teachers who needed less direct supervision. Thus this plan was considered by Seaborne to have evolved from the corridor plan, in which the corridor was widened to eventually become the central hall as the gathering place for the whole school population. The verandah and quadrangle plan is also considered to fulfil the basic criteria for the type. The only real difference is that its central space is unroofed except for the perimeter's verandah-covered circulation spaces.

Literature search revealed classic examples which were found to encompass a range of plan shapes, including the semi-circle, as in the Stuttgart-Stammheim Primary School (Blundell-Jones, 1990); or three quarter circle in the Öhringen School in Germany (Blundell-Jones, 1995); the square of the Losone Secondary School, Switzerland (Buchanan, 1988); or rectangle, and a number of irregular geometries, such as the Cadiz School, Spain (Williams, 1995). It was noted that even separate buildings of a distinct group, could be classified as a centralised organisation of spaces

when the buildings created a sufficient sense of connection to and containment of the central space to fulfil the basic criteria for the type. Höchi Dättwil School in Baden (Blundell-Jones, 1991) is a typical example of the latter variant.

An exemplar of the centralised spatial organisation in a school is the Low Furness CE Primary School, Great Urswick, Cumbria, pictured below in Figure 2.1. The architect for this project was Alan Gillard from the Cumbria County Council. He designed a pyramidal building with a square plan incorporating a central hall. This arrangement of spaces was his response to the requirements of the brief which expressed a need for: "a stimulating learning environment; high quality facilities; spaces capable of flexible use; (and) running cost minimisation". The roof form facilitated the penetration of natural light into the central space (Gillard, 1994).

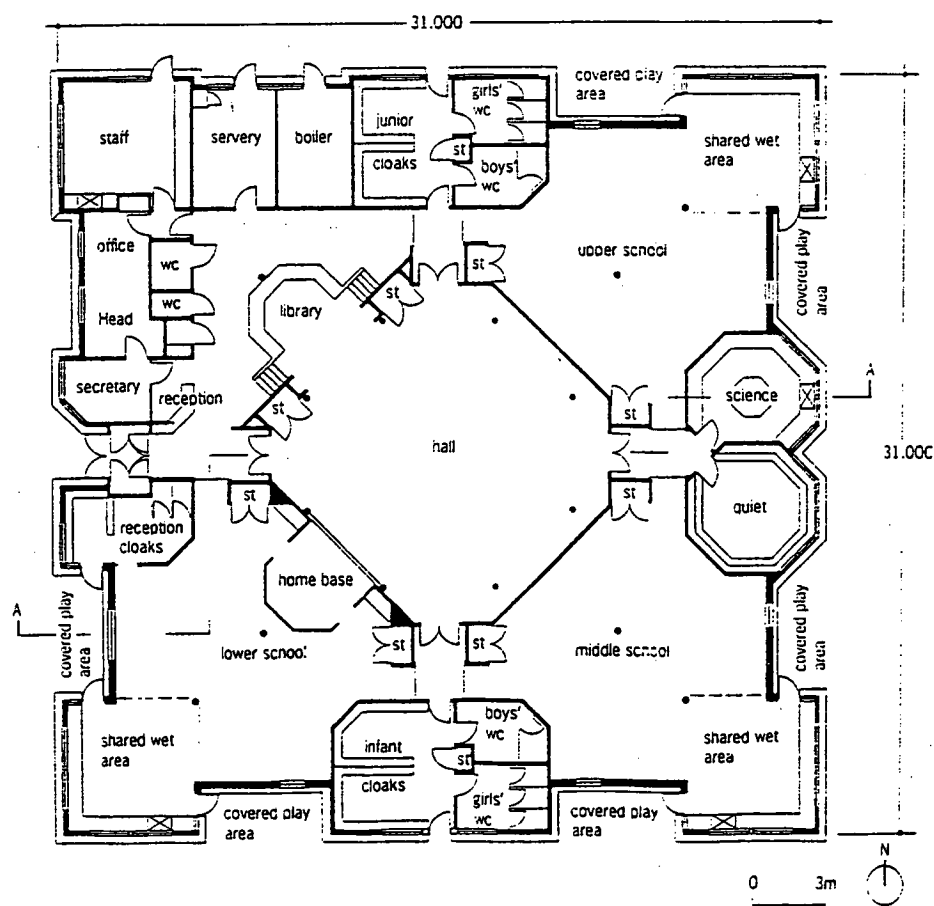
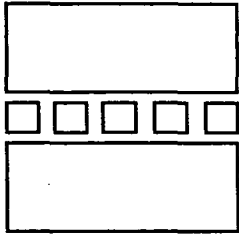


Fig. 2.1 GROUND FLOOR PLAN Low Furness CE Primary School Arch't: Gillard

2.2.2 *Linear spatial organisation*



*A linear sequence of repetitive spaces
(Ching, 1979, p. 205).*

The linear plan is very commonly used in school planning strategies. In this configuration, rooms form a linear sequence of somewhat repetitive spaces. The type is described by Seaborne (1971) as the corridor plan school. The most common format incorporates two parallel rows of similar rooms divided by a long shared corridor. The primary determinant for this style is the need for natural light and ventilation in all the rooms. However the desired cross ventilation effects, for example, are often not achieved because individual teachers close their doors to the corridor to achieve classroom privacy.

According to Ching (1979, pp. 214-223), the "form of a linear organisation is inherently flexible". Thus, examples may be found that are axial and uniformly contained (refer fig. 2.2, next page); transformed and irregular, as the Park Junior School, near Aldershott (Dawson, 1995); segmented, or even curvilinear, as the Institute of Technical Education, Singapore (Powell, 1994). The linear configuration may be used to 'enclose' the central gathering space of the centralised classification. It may also be used to form the 'arms' of the radial type and it is commonly utilised to divide open spaces or to form a protective barrier.

An exemplar of the linear style of spatial organisation is the Albert Camus Lycée Polyvalent, Fréjus, France, in Figure 2.2. This energy efficient two storey building located on a hillside of the Côte d'Azur was designed by

Foster and Associates. Its off-set 'corridor' takes the form of a double height internal street with an elevated roof and clerestories that creates a 'solar chimney' to encourage convection (James, 1995). Rather than following contextual precedents, the building has a strong identity in its open location. In a television interview, one student claimed that, rather than being the cold, concrete and glass monument as the school had at first appeared, it was actually warm and open, encouraging students to feel free and at ease. The walls of the classrooms are glazed to the exterior and to the internal street, thus depriving the occupants of some privacy. However, the actual effect on students has been positive and the new principal was impressed by the serenity of the pupils. He believed that the permanent transparency of the learning environment has helped to develop self-discipline in the students (TV interview, SBS, 1997).

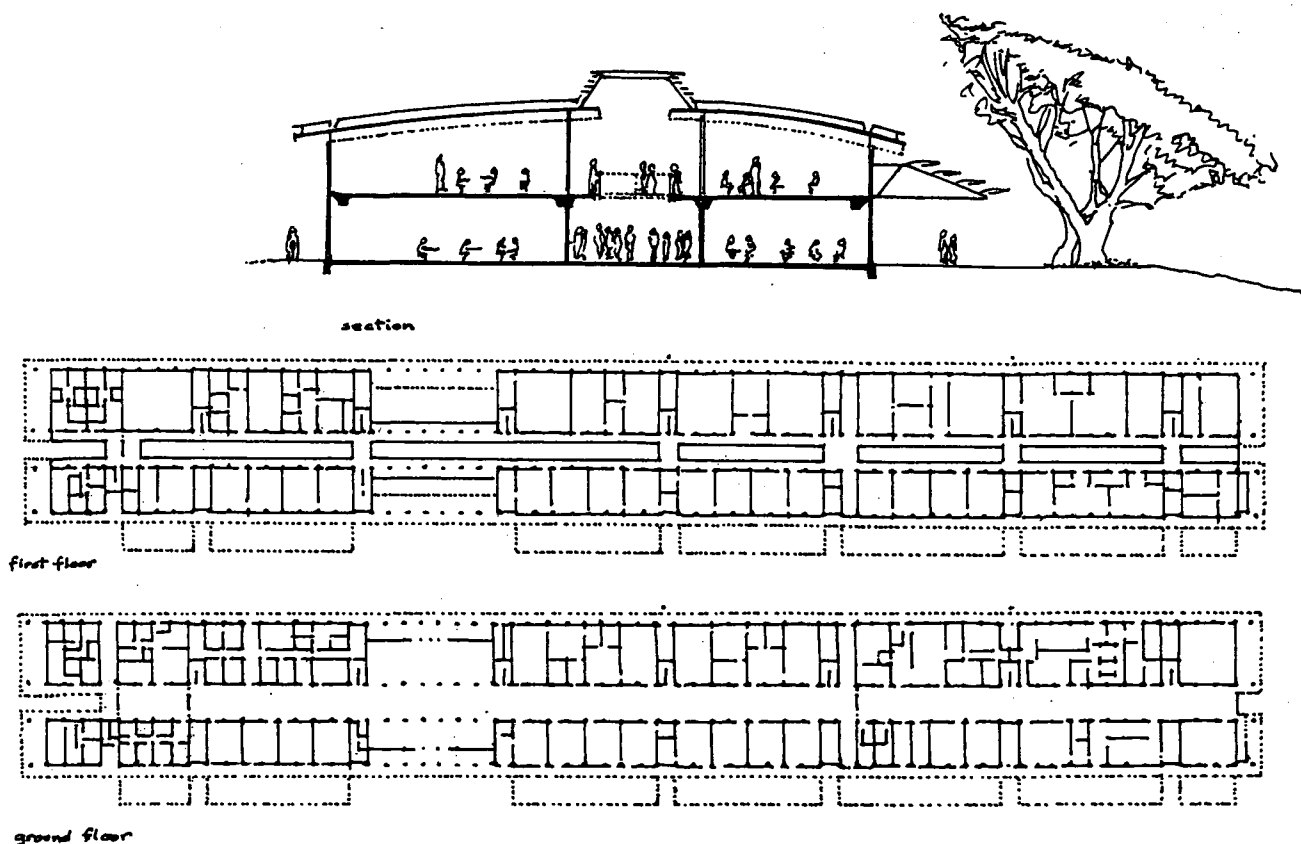
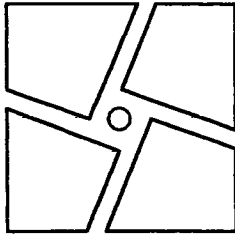


Fig. 2.2 PLAN & SECTION Albert Camus Lycée Polyvalent Arch't: Foster & Assoc.

2.2.3 *Radial spatial organisation*



A central space, from which linear organisations of space extend in a radial manner (Ching, 1979, p. 205).

Increases in the school population may have led to the utilisation of the radial spatial arrangement in which the preferred linear format is retained by the addition of linear arms that radiate from a central space. Thus the requirements for light and ventilation continue to be provided and preferred connections maintained. The radial form of spatial organisation was often manifested conceptually as the outstretched fingers of a hand shaped plan. Each 'finger' consisted of a linear arrangement of rooms such as those described previously. Ching included a variant that he described as the "pinwheel pattern", in which perpendicular extensions from a square or rectangular focal space create a "dynamic pattern that suggests rotational movement" (1979, pp. 224-229). A regular arrangement of 'arms' is typical (refer to fig. 2.3, next page). However, in Europe, a recent spate of new schools in the 'organic' and 'deconstructivist' architectural styles, has resulted in irregular radial organisations in which the linear forms phenomenologically 'collide' and 'penetrate' one another with a central space created in the middle of their overlaps. This form may be seen in the Technical University in Graz, Austria (Blundell-Jones, 1988), and the Special School at Bad Rappenau, Germany (Blundell-Jones, 1992).

The Farnborough Grange Junior School, in Hampshire may be considered an exemplar of the radial form of spatial organisation in a school design.

The Hampshire County Council promotes designs in which natural light penetrates deep into the classrooms of schools in their region. Therefore it seems logical that the linear style has been utilised by them in many variations in the past. This school however, has been designed by Edward Cullinan and Associates in a classically radial plan (refer to figure 2.3, below) to fulfil the same requirements of the LEA's brief (Davey, 1991)..

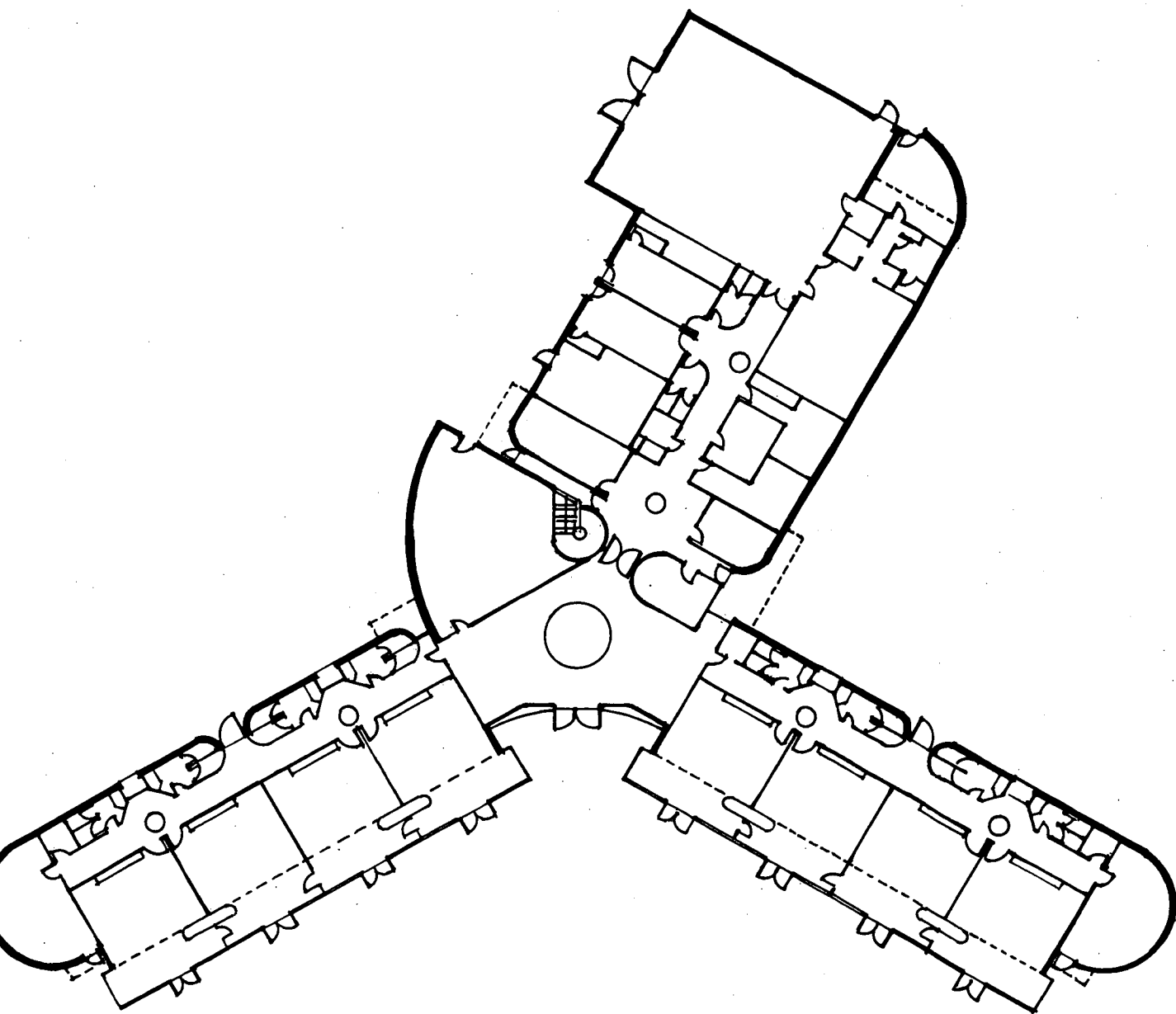
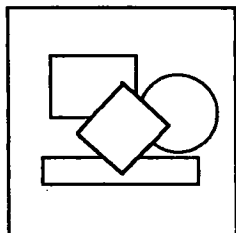


Fig. 2.3 GROUND FLOOR PLAN Farnborough Grange Junior School Arch't: Cullinan

2.2.4 *Clustered spatial organisation*



Spaces grouped by proximity or the sharing of a common visual trait or relationship (Ching, 1979, p. 205).

The clustered form of planning is commonly seen in the 'compact' and 'open plan' schools that proliferated during the 1960s. Nevertheless, there is no restriction to 'open planning' in this category, as many clustered spatial arrangements include separate, fully enclosed rooms accessed from corridors or other shared gathering-cum-circulation spaces.

The clustered plan may utilise a formal geometry; however, to qualify for this classification there must be no obviously dominant central space. The matter of natural light and natural ventilation can become a problem if the clustered plan becomes too deep, although the tendency towards informal geometries may avoid this.

The typical clustered plan has been utilised for day care centres in which early learning is encouraged, as in the Day Care Centre at Sinikello, Finland (Davey, 1990), and in kindergartens and primary schools, such as the Magdalena Elementary and Middle School, New Mexico (Davey, 1988).

A variant of this typology that is commonly designed for large campuses is the plan in which interlocking spaces are contained within the multi-storey building form (refer fig. 2.4, next page). An exemplar of the clustered type of spatial organisation is Building 8, at the Royal Melbourne Institute of

Technology. Designed by Edmond and Corrigan, each floor level of Building 8 has a different plan to suit its various purposes. The RMIT's main library and architecture studio and offices are housed in this infill building, which also 'straddles' an earlier structure. The aesthetic treatment of its various facades, especially the brightly decorated Swanston Street elevation, has generated controversy in the discourse of both architectural and community criticism (Hyatt, 1994).

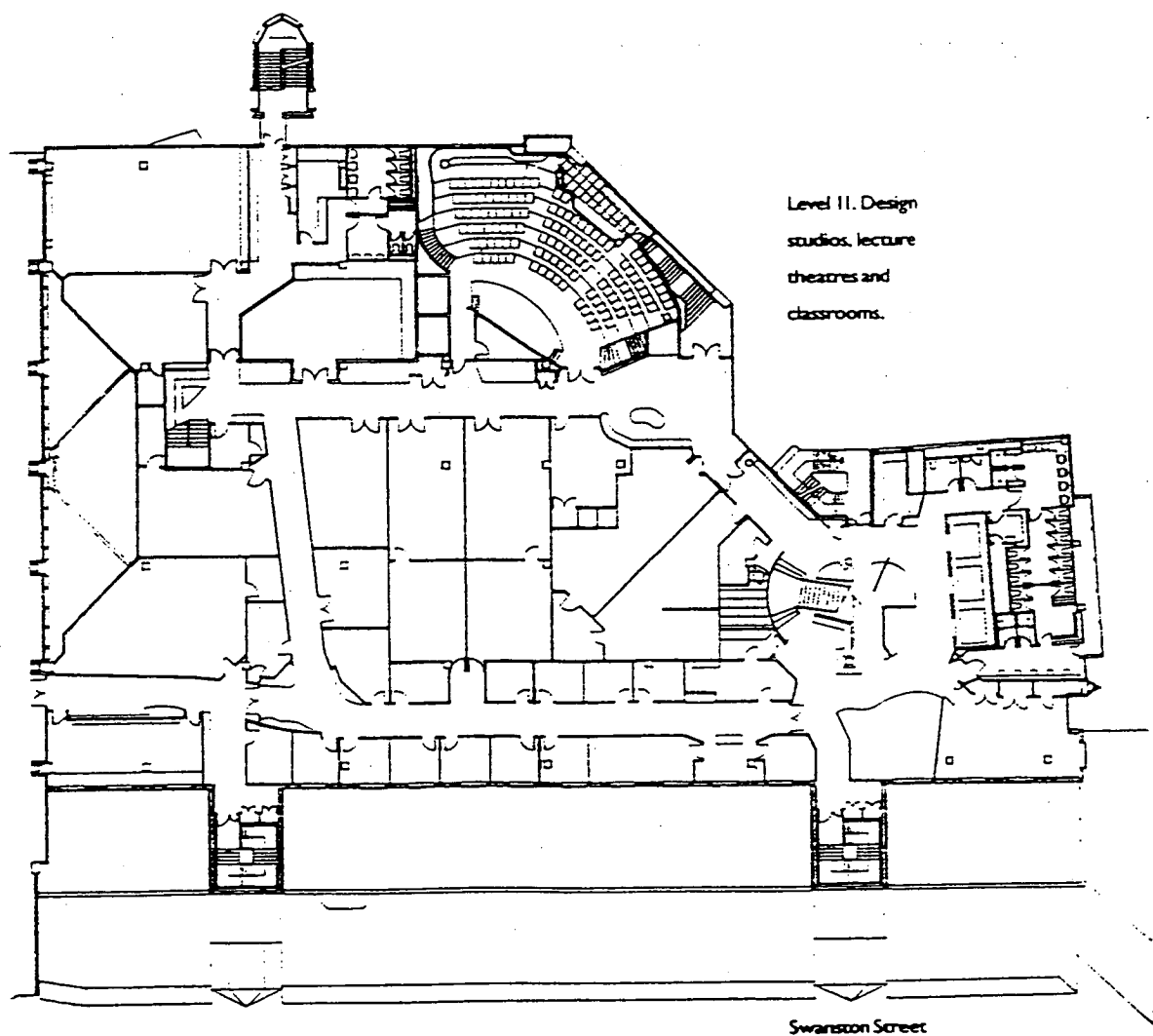
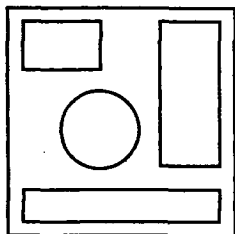


Fig. 2.4 LEVEL ELEVEN FLOOR PLAN Building 8, RMIT Arch't: Edmond & Corrigan

2.2.5 *Scattered spatial organisation*



Separate spaces or buildings that are scattered across the site (in the manner of Ching).

The scattered typology may utilise little or no formal geometrical organisation in the placement of individual buildings on the school site. Variants of the type may incorporate several (or all) of the previously described design strategies for individual buildings, or the entire complex may follow a single stylistic concept. The separate rooms or buildings may be connected by covered walkways or open paths, but it is not necessary for a formal geometric order to dictate the buildings' connections or relationships. Nevertheless the use of a grid or other conceptual determinant for the placement of buildings may be used within the classification. It is the separation of the structures that constitutes the basis of this type.

The typology is commonly utilised on large campuses for which a single building would be impossible or at least inappropriate. It is also commonly found where schools have experienced an unplanned growth in population, necessitating unforeseen extensions. One recent variant of this type of spatial organisation attempted to recreate the "school as a village" as may be seen in the Tanbridge House School, Sussex (Waldron, 1994). Another type is a delightful three-dimensional 'catalogue of types', in which manner the Crescent Girls School in Singapore has been designed (Gunn, 1994).

An exemplar of the scattered type of site plan, is Mowbray College at Melton in Victoria (see Figure 2.5, below). Architect Norman Day's ongoing involvement in the design of this co-operative school has resulted in a loosely connected collection of buildings on a site plan that may be accurately described as based on random disorder. No master plan was ever drawn and no consideration of solar orientation was given for any of the rooms.

Architectural styles of the buildings are eclectic and yet the staff, parents and students who were involved in the design process, utilise its variety of spaces and tend the grounds with something akin to 'pride of ownership' (Spence, 1991).

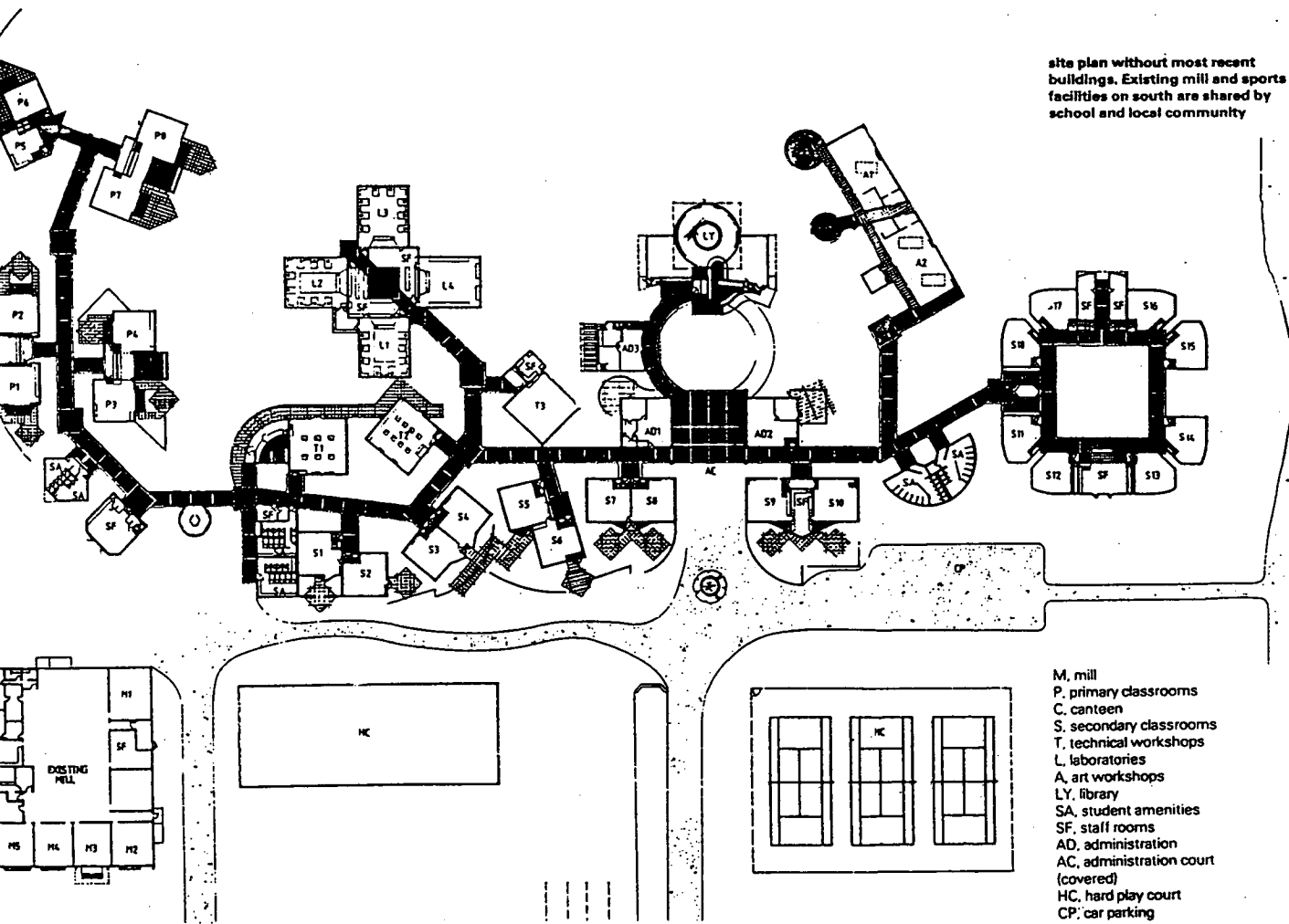


Fig. 2.5 SITE PLAN Mowbray College Arch't: Norman Day

2.2.6 *Conclusions*

The five different types of spatial organisations (just described) by which one may classify the design of a school building or even a school site plan, are universally applicable, thus not restricted to a single place or country. The ultimate aim of any architect designing a school, is that the arrangement of spaces within the school building or buildings, may not only facilitate the learning and teaching programmes therein, but may also enhance the effectiveness of the administration processes and the interface between the school and the greater community. Any difficulties encountered from an inadequate or obstructive physical environment, might therefore influence all aspects of school life, and may have an even greater effect on the role of the principal as the one who is ultimately, held responsible.

Each person who inhabits the built environment of a school, has a number of idiosyncratic needs that the building can fulfil. A fundamental example of a need that is common to most people, is the need for shelter. Other needs tend to vary according to individual preferences, such as the need for privacy, for example. It is from a fundamental belief that there are certain building types that suit the needs of certain types of people better than others, that the arguments presented in this chapter have been developed, even though any attempt to test that belief would be beyond the scope of this study. Nevertheless, with that belief in mind, the first part of this chapter concerned the role-personalities of the school principals who form the subjects of this dissertation. The school buildings just described, form the settings for the study, and the following section forms the substance, which is a taxonomy of the building-related needs of school principals.

A man has three skins; his own, his clothes and his shelter

Anonymous

Shelter is a fundamental human need. One's skin alone may be sufficient protection from the weather in the balmy tropical regions of this world, although even there, some shade from the sun would seem desirable. Elsewhere, humankind would not survive without some form of clothing or shelter to provide protection from the extremes of climate.

Each form of enclosure or 'skin' referred to in the above quotation serves to create an environment for the physiological comfort and function of the person thus enclosed. The basic physiological effects and therefore physical importance to the individual of all three 'skins' are universally known and generally accepted. Their psychological and social importance however, are vastly more complex issues about which it is far less easy to find consensus of opinion, interpretation or acceptance.

Care of the skin and its decoration has constituted a preoccupation of mankind since the earliest antiquity. Evidence has been found in ancient tombs and other early records of cosmetics used to nurture and beautify the skin. It is believed that the original practice of cosmetic care of the skin stemmed from the need for protection from the drying and weathering effects of climate. The warpaint of the American Indians, the ceremonial body painting used by some African tribes and Australian aboriginals, and the more permanent decorations achieved by scarification, dyes and tattooing practised by New Zealand Maoris and many other cultures are all believed to

have developed in attempts to frighten and ward off enemies or predators in times of threat. These well documented forms of body and facial decoration and the exotic eye decoration used by the early Egyptians for example, may be assumed to have further developed simply to beautify the skin and overall appearance of the individual. Comparable forms of skin decoration are in common use today.

Mankind's similar preoccupation with clothing also extends from prehistoric times. Apart from modesty, it is generally accepted that the primary determinant for clothing in its various original forms around the world, was protection from the exigencies of climate. The thermal comfort factor remains a strong influence on clothing style today when climatic conditions demand and a choice is possible. Clothing for warriors was designed to provide the maximum protection from injury, as may be clearly seen in the cumbersome armour used during the middle ages in Europe. This has now developed towards the minimal protection in clothing of camouflage and bullet proof undergarments. The need to express one's individuality in clothing styles has been perpetrated by the ruling classes since ancient civilisation. This practice is now widespread across all classes of society in developed countries (Funk & Wagnall, 1986).

Attitudes towards the many and varied forms of shelter (or 'housing') that people have used and constructed throughout history have followed similar patterns that may well be based on the same three fundamental human needs:

- *first for protection from climate;*
- *second to ensure protection from danger; and*
- *third as a medium through which to express one's creativity.*

When considering the structures that provide shelter, the logic of those 'environment-related' priorities is clear and simple. The evidence gleaned from remnants of archeological artifacts that indicate the early use of caves as dwelling places and the rudimentary structures that continue to be constructed by primitive races, support the general belief and continuing attitude that, initially, their primary function is to provide some basic shelter from the climate. Secondly, once the shelter is established, if one's life is endangered from an external force or enemy, one's immediate priority is to protect that life by ensuring the safety and security of the enclosure. This belief is reinforced by the tendency of the more sophisticated cultures to deliberately select the site for their dwellings to facilitate defence from external attack. The location of heavily fortified mediaeval castles on the top of a cliff or similar dominant landform would seem to provide evidence in support of this assumption. Lastly, when both the previous needs have been met, as may be witnessed in the parallel development and utilisation of cosmetics and costume, it is evidently possible to progress a little further and express one's creative urges in the decoration of the 'enclosure'. Cooper, in her working paper, "The House as a Symbol of Self" stated that "with increasing economic and psychic stability ... a person may no longer regard his house as a fortress-to-be-defended, but as an attractive, individual expression of self-and-family" (1971, p. 16). This, and other less 'personal' forms of expression may be seen in the varying degrees of ornamentation used in world architecture throughout the ages. Also, a particularly striking example of such creative expression by more primitive cultures may be seen in the seasonally renewed painting of the earth masonry dwellings of the N'debele and Bantu peoples of southern Africa (Saitowitz, 1988; Walton, 1975).

Once established in a dwelling place that provided the necessary shelter and security, and given the acquisition of appropriate building skills and materials, people of most cultures also tended to increase the comfort, size and complexity of their homes. Spaces would be apportioned for more inhabitants and were divided according to practical function, such as; washing, preparing food and sleeping, for example. In some cultures, this sharing and division of space is believed to have further developed and become regulated according to 'social rules' that determine the acceptable layouts of rooms within a dwelling and the relationships of buildings within a village or compound. Typical manifestations of these rules for design may be seen in the traditional layouts of housing compounds in Bali (Budihardjo, 1986), and in the layout of spaces within the places of worship designed for any of the major world religions.

The perceived spiritual or social importance of a person, ritual, process or place ensured that a hierarchy of spaces developed in which the most important person or ritual was housed or located in the most symbolically important or functionally appropriate place within the building. Lord Raglan hypothesised that the house as such, originated as a temple, and that the first person of the tribe or society to be actually provided with a 'house' was the earthly king or ruler (Cooper, 1971, p. 20). It is assumed that the individual preferences of that dominant person would be considered in matters such as the control of access to and decoration of the spaces within the place. Thus the symbolism of hierarchy became strongly associated with buildings and the role of the 'leader'.

It is hypothesised that all these matters extend to work places, including schools.

2.3.1 ***A taxonomy of needs***

The environment-related priorities just discussed, may be linked to Maslow's theory of motivation that he called a hierarchy-of-needs (1970). Maslow's particular theory was considered flawed by Shakeshaft and Nowell (1984) in that its basis was seen to be exclusively male in orientation. Nevertheless the general concept remains attractive to many. The hierarchy of needs postulated that when the lowest order of need was met, a higher order need appeared that the individual would find more potent and thus be motivated to satisfy.

A simple interpretation of his hierarchy is that:

- the lowest order concerns the *basic physiological needs*, including food, water, shelter, and similar factors that might ensure the continuation of life;
- the second order concerns the need for *security and safety*, which in organisational life may be reinterpreted to mean job security and regular pay;
- the third order concerns the need for social *affiliation*, which means the individual wishes to feel a sense of acceptance and of 'belonging' to the family, group, community or organisation;
- the fourth order concerns the psychological need for *esteem* that includes both self-esteem and recognition by peers;
- the highest and fifth order concerns *self-actualisation* in which the individual is motivated to "develop into what one is capable of becoming".

Maslow's concept of motivation generated "intense criticism" and yet the basic structure continues to have a widespread influence. Porter, in studying the motivations of American managers, reworked Maslow's hierarchy

somewhat. His initial assumption was that a person in a managerial position in the USA would not be motivated by hunger, thirst, or a need for basic shelter, so he deleted the first level of physiological needs. His first level then became security, his second was affiliation, his third was self-esteem, for his fourth he extracted and utilised autonomy from Maslow's highest order, and his fifth and highest order remained as self-actualisation (in Owens, 1991).

For the purposes of this dissertation, the structure of Porter's adapted hierarchy has been utilised as the basis of an attempt to develop a taxonomy of 'building-related needs' that will be assessed through a questionnaire. The benefits of having precise lists of psychological 'needs' that the environment can satisfy have been recognised in the literature, but to date, the desired lists do not exist as generalisation is almost impossible for the overall population. However, the specific behaviours associated with isolated communities, old age and mental disorders are well documented and it has therefore become possible to design appropriate environments for the special needs of those people. Our understanding has thus further developed (albeit of extreme behaviours and environmental effects) and the goal of being able to "understand individual behaviour and predict individual reactions" seems closer (Levy-Leboyer, 1982, p. 82).

Matters pertaining to the physiological comfort of the building user are not being tested (in any direct way) in this research through the instrument of the questionnaire. However their importance to the building's occupant cannot be underrated and must remain a viable factor of influence on any or all aspects of psychosocial significance within the context of the built environment. Therefore a limited discussion of physiological factors is included below.

2.3.1.1 Physiological needs

Physical comfort levels within school buildings

The physiological needs include; "hunger, thirst, sex, activity, rest, homoeostasis, and bodily integrity" (Mercer, 1967, p. 129). Reinterpretation of these usually includes the need for basic shelter. Given that the provision of a school building or buildings has ensured that the occupants have shelter, the adequacy of that shelter in providing comfort for the users, whether able or disabled, might nevertheless affect the performance of its occupants. Should a school's buildings be deficient in the provision of any of the essential physical physical comfort needs, the overall performance of the principal, the staff, and the students may be affected to some degree. Thus, in accordance with Maslow's basic hypothesis, such a deficit at the foundation level of his hierarchy, might jeopardise the higher needs motivations and consequently limit the task performance of all so affected.

The literature on environmental perception, environmental psychology, environment behaviour studies (EBS) and architectural science abounds with studies of the effects of noise, colour, light, air quality and thermal comfort levels on the performance and behaviour of the occupants of given buildings. Scientific research has established that human perception has measurable thresholds, beyond which, for example, the intrusion of intense levels of noise, dazzling lights or extremes of temperature can quickly induce a state of "somatic stress" which can "prevent a balanced assessment of the total experiential situation" by the occupants of the afflicted room (Fitch, 1970, p. 78). The persons thus affected may be unable to perform allotted tasks or even to think clearly.

Such extremes would be assumed to be an infrequent occurrence within the environment of the average school. However, the publicity generated by the

results of these scientific studies created a general increase in awareness that led to the determination of acceptable air temperatures and moisture content, rates of air flow, noise levels, intensities of illumination, and air qualities, for example, that enable accurate design for the performance of buildings and their mechanical services (for example, Szokolay, 1980, and Reid, 1984). Therefore, even when consideration is given to the broad range of individual preferences in thermal comfort levels for example, an acceptable measure of comfort should be attainable for all in a properly designed and maintained building.

All the basic physiological comfort needs are considered essential human rights in the provision of an appropriate work environment. Nonetheless, as stated previously, any attempt to assess the physiological needs were considered beyond the scope of this study. Therefore, the matters that constitute the taxonomy of building-related needs that will be assessed by questionnaire, are discussed below following the structure only (not the content) of Porter's adaptation of Maslow's hierarchy of needs.

2.3.1.2 Security and safety needs

Control of stimuli within the school environment and legibility of its spatial organisation

Mercer's interpretation of Maslow's hierarchy included a perceived need for; "orderliness, justice, consistency, routine, predictability, limits, and physical safety" as examples of safety needs (1967, p. 129). Several of these items may be seen as directly relevant to building-related needs. At least one attempt has been made to align Maslow's hierarchy of needs with functions of the built environment. Steele's (1973) needs and functions were linked to sociophysical mechanisms that were seen as design issues. With regard to safety, Lang (1987) interpreted Steele's concerns as being for the provision

of social contact. Lang further interpreted this as a need for "access to services, privacy, territoriality, defensible space, (and) orientation" (p. 110).

The processes by which we evaluate our environment and literally find our way around it are referred to by some theorists as "cognitive mapping" (Kaplan & Kaplan, 1981). These subjective systems of evaluating sensory data tend to vary considerably among individuals, especially when those people have grown up in vastly differing environments and cultures.

It is believed that the human infant first sees the world as confined to her mother and the immediate surrounds (of the bassinet and its decorations, for example). As she grows and begins to move around, her world expands to include the people and things in her home that are either within or tantalisingly just out of reach. The environment of the child's home thus becomes familiar, as a place (ideally) of security and love. With further growth and exploratory activity, the child will test the unknown and perhaps insecure environment outside her home. Thus, with the culturalisation and socialisation that accompanies the development of the child within the family and then within the greater community, a pattern of environment-behaviours is established within defined environments that will influence the future attitudes and behaviours of that person throughout her later life. The feelings of psychic security (or insecurity) one feels within certain familiar environments are thenceforth entrenched for future nostalgic recall (Cooper, 1971, White, 1970, and Beck, 1970).

The relative psychological importance of the familiar physical setting to the individual is believed to be linked to the formation of identity, in the person's quest to answer the question 'who am I?' This search "for a personal sense of identity seems to be a fundamental aspect of man's nature" (Kira, 1970, p.

272). Furthermore, "the development and maintenance of an identity in the individual does not depend entirely on how others react to (one's) behaviours, skills and achievements. It is also a matter of places and things, and the acquisition of both serves to define and evaluate the identity of the person for himself and for others. The loss of valued objects or places or unwilling separation from familiar physical settings for long periods of time, may contribute to a blurring or even a loss of identity" (Proshansky and others, 1970, p. 180). Such a loss, displacement, or fundamental change, could therefore lead to insecurity and even "much grief" (Fried, in Lang, 1987, p. 164).

Hamilton-Eddy (1971) proposed that "ontological security is a culturally defined idea, and security within a culture emerges out of a resolution of the oppositions and tensions within every society". He claimed that the "oppositions" requiring resolution to ensure psychological security include; "inner directed / other directed, dominance / submission, constituting / constituted, sadistic / masochistic, masculine / feminine and symbolic / systematic". Ideally, security would be found in a balance of the opposing tendencies or needs. However, people tend to commit themselves "either to the 'security' of domination and control or to the 'security' of submission and identification with the group or system - and so (eventually) find themselves in a situation of unbalance and of neurosis" (pp. 57-60). The person who identifies strongly with the group or organisation may also (unconsciously perhaps) identify with the setting (or place) in which meaningful interaction with the group occurs.

Identification with place may contribute to a sense of psycho-spatial security that is evident in the way one may feel secure or 'at home' in certain familiar environments. It also means that the place in question has become a part of

the territorial domain of the person concerned. Anthropologists are particularly interested in the ways people use space and their classifications of terms relevant to territoriality will be utilised for this discussion. Rapoport, in investigating the definition of place for Australian aborigines, provided a generalised description of spatial use, the concepts for which were derived from studies of animal behaviour (1975, pp. 38-39). He described the 'home range' as the usual limit of regular movements and activities. 'Core areas' were considered to be the areas within the home range that were "most used and commonly inhabited". The 'territory' referred to a particular area that was "owned and defended" and 'jurisdiction' inferred "ownership" of a territory for a limited time only. Rapoport's descriptions related closely to studies of territoriality by others, including Stea (1970) and Roos (1970).

The school site constitutes a part of their 'home range' for pupils and staff alike, yet individual dependencies on the environment for fulfilment of their psycho-spatial security needs vary considerably. Nevertheless, whether part of one's territorial 'range' or not, one needs to be properly oriented in the environment in order to function effectively. For proper psycho-spatial orientation the autonomic systems of the human organism need to be constantly adapting to changes in the perceptual environment. Our capacity for adaptation however, has limits, and the stress of constantly undergoing the physiological changes associated with orientation (Toffler, 1970), may overload an already stressed system and may even lead to collapse. Environmental stress occurs when the person does not prove able to adapt to the difficulties that occur in an overstimulating, inadequate or insecure environment.

Cohen (in Levy-Leboyer, 1982, p. 116) explained the processes associated with overload from multiple stimuli:

- (1) *human beings have limited attentional capacities;*
- (2) *when the demands of the environment exceed this capacity, a hierarchy of priorities is brought into action and attention is focused on the information which is important to the subject;*
- (3) *if environmental stimuli are present which exceed the capabilities of the individual, this initiates an evaluative process which will permit adequate adaptive processes to be activated.*

As a coping mechanism, the overloaded person may reassert his or her control over environmental events by a 'tunnelling of attention' in which the person is very selective in what is noticed or heard. According to Levy-Leboyer, "this reorganisation of attention does not only have effects on performance and memory, but also on social behaviour. Indifference or aggression towards other people ... (may be evident) " (1982, pp. 116-118). Thus, the already stressed individual may find that the levels of noise usually expected within a school, perhaps from students at play or a rowdy discussion from an open classroom, may be 'the last straw', causing inordinately extreme outbursts, reprimands or even withdrawal from social contact. A similar reaction may occur when the overstressed individual views the chaotic disorder of a busy classroom, for example. According to Glass and others (1976), the deleterious after-effects of stress occurred where the persons (in their study) perceived that they had no control over physical (or social) stressors. Such responses may indicate that the coping mechanisms of the individual are not functioning in the normal manner. His or her environmental 'competence' is impaired and without the confidence of feeling able to control environmental events the individual becomes very insecure in the maladaptive environment.

Pre-civilisation hunters survived and some even thrived because their environmental 'competence' levels were well developed and their information-handling systems were conceivably 'underloaded' compared to

today's worker. The urgent need for those early humans to 'know' their environments intimately in order to evade life threatening attacks, is no longer a common problem for the average person in the western world. Nevertheless, in spite of vast improvements in the quality of life for many people, crime and aggression remain potential threats, even in our schools.

Although the vulnerability or defensible status of the school design is not being investigated in this study, the work of Newman in his book "Defensible Space" (1972) has provided valuable insight for aspects of this research. His focus was on housing and he included design solutions to avoid the creation of buildings that attract vandalism and other criminal attacks. His proposed strategies may, in part, be transferable to the school site especially in the main (relevant) thrust of his findings that shared semi-public space needs to attract group 'ownership', be well utilised and observed by fellow inhabitants (natural surveillance) to deter intending aggressors. This links directly to Steele's concerns for "social contact" to achieve a safe environment (Lang, 1987, p. 110).

The proposition for this study is that the provision of a familiar (legible) or preferred spatial organisation (or critical elements thereof), and the fulfilment of personal needs regarding control of stimuli such as noise and visual disorder within the school, may facilitate the development of both a sense of role-identity and psycho-spatial security for the Principal or other person in a leadership role.

2.3.1.3 Affiliation needs

Schoolwide interaction "affordances" in the permeability of spatial boundedness

The belongingness and love needs include "the need to love and be loved,

the need for friendship, interpersonal relationships, and a sense of identity with a group" (Mercer, 1967, p. 129). At first, this set of needs seems quite unrelated to the buildings of the school until one remembers that all behaviours, including social interactions, take place within an environment of some sort. Willems (1977) even argues that some behaviours are "site specific" or "place dependent", a belief that is well supported in the literature from studies of the frequencies and patterns of spatial-use.

Certain types of architecture are considered to be anthropogenic (foreign, or unattractive to mankind) by the very nature of the building's function. Power plants, cold storage facilities and similar functional types fall logically into this category. Other forms of architecture are at the extreme end of the scales as being highly attractive to mankind or, in several instances, have been designed solely for the long-term incarceration of people, as is the case with prisons, group homes for the aged or disabled, or psychiatric hospitals for example. These buildings are considered to be anthropophilic. The majority of buildings fall somewhere in the midrange, however (Izumi, 1970).

It is from intensive studies within the anthropophilic buildings that many valuable insights have been gained into the relationships between the built environment and social behaviours. The relatively stable populations therein meant that studies could be easily replicated for validity and the findings therefore considered reliable. Sommer's (1970) research, investigating the sociofugal and sociopetal natures of space, confirmed his belief that certain arrangements of furniture within a space could encourage social interaction (thus deemed sociopetal spaces) while in others, a lack of interaction was very evident, which meant they would be classified as sociofugal spaces. Clearly, even the most skilful design cannot force people to interact with one another if that is not their wish, but at least the provision

of a spatial arrangement that allows one a choice of actions is preferable to a fixed-feature space that inhibits and controls behaviour (Hall, 1970).

The school site and various spaces within the building/s are considered to be, as previously suggested, a part of the territorial 'home range' of both staff and students. For most, the school would also be a place in which each may establish a 'territory' to be defended, even if it only consists of a desk space or locker. It is highly likely that several territorial 'behaviour settings' with territorial 'paths' connecting them are located within the school site as part of that 'home range' for some, if not all of those people.

Probing a little more deeply than Sommer's observations of space-use, Hall's (1970) studies of proxemics measured the spatial 'barriers' that people utilise in the presence of other people. Hall's observations led to the proposition that, for his subjects at least, four distinct zones of preferred proximity were common, ranging from the closest; "intimate distance", to "personal distance", then "social distance" and to the furthest; "public distance". Rapoport has argued that these distances are culturally determined and thus variable (in Hall, 1970). Should the design of the school not allow for the maintenance of these individual preferences, some environmental stress may be induced in certain people for whom (autonomic) orientational adjustments would be triggered. Their coping mechanisms, if inadequate, might manifest as weird or irrational behaviour in extreme cases. In these circumstances, even the average well-adjusted (unstressed) person would experience frustration (at least) and may even feel inhibited, unable to perform his or her role to full potential.

The openness or enclosure of the spaces within the school have been referred to, in this study, as the 'permeability of spatial boundedness' for

clarity of meaning. The fully self-contained (enclosed) classroom with a closed door would, it is assumed, attract a more formal type of behaviour from the visitor or other staff, for example, to enable contact with the teacher during class than would a teaching space within an open plan school. In the former, the closed door represents a relatively 'impermeable' barrier at which an unspoken rule requires one to formally knock and wait for a response before entering. In the latter open space which could be described as 'permeable', one could conceivably catch the eye of the teacher and communicate with him or her without necessarily interrupting the activity of the class.

Whether or not classrooms or offices ought to be completely enclosed, or whether they should be partially or totally 'open' has been the subject of longstanding debate. As discussed in an earlier chapter, the conflict that raged during the 1960s and 1970s over the proliferation of 'open plan' schools, led to a similar proliferation of studies into the perceived effects of the open plan on most aspects of school life.

Bennett and others (1980) undertook a comprehensive study in Britain in which some findings pertinent to this topic were discussed. They cited a study by Brunetti and others, in which teachers in traditional self-contained (enclosed) classrooms were compared to teachers in team teaching organisations in open plan schools. In the latter situation "much more teacher interaction related to work" was reported. The foci of discussions also varied consistently. "The open plan teachers talked more about curriculum planning, teaching and evaluation, whereas in self-contained situations talk was more often related to administration and routine" (pp. 33-34). Other cited studies confirmed an increase in communication between teachers in the open plan schools when compared to traditional design

schools.

The proposition is, that the environment which provides the “affordances” (Gibson, in Kaplan & Kaplan, 1981) or opportunities for social interaction may facilitate the fulfilment of one’s role-related affiliation needs better than a restrictive, inhibitive environment.

In support of this argument Steele’s (1973) proposed functions of the built environment that align with the belonging needs are (a continuation of) social contact and symbolic identification. His psychosocial mechanisms affirm that the designed environment should provide access to “services and communal settings” and express “symbolic aesthetics”. The overall process in the fulfilment of individual needs is a progressive development of related concepts. In the same way as in any discussion of perceived human needs, especially those involving the complex social motives, some overlap of the issues will be observed. Thus, different facets of proxemics, privacy, territoriality, identity, and control, for example, may be relevant to fulfilment of each of the psychological ‘levels’ of need.

2.3.1.4 Esteem needs

Status, symbolically expressed in the aesthetic image of the school

The esteem needs have been divided into two sets of needs. In the first set, “self-esteem” includes the need for “strength, achievement, adequacy, mastery, competence and independence”. In the other, the need for “the esteem of others” includes; “prestige, reputation, status, dominance, recognition, attention, and appreciation” (Mercer, 1967, p. 129). Like affiliation, the esteem needs are not obviously connected to the built environment. Steele’s concerns (1973) were for the development of sociophysical mechanisms so that the built environment might facilitate

growth and pleasure. Lang's (1987) further interpretations thereof were that the design should "afford" personalisation, symbolic aesthetics and control.

Symbolism is a concept that cannot be bestowed at the whim or will of the designer. The building may manifest as a 'sign', but only the viewer can interpret whether that concrete sign has any symbolic meaning for him or her. These symbolic / systematic oppositions are present in a person from childhood. Jacobi claimed that "the symbolic imaginative view of the world is just as organic a part of the child's life as the view transmitted by the sense organs" (in Cooper, 1971, p. 4). Cooper suggested that 'man' may see the interior of his home as "self viewed from within" and the exterior as the "symbol of self which he wishes to present to the outside world" (1971, p. 7). Often, the location, size and decoration of the dwelling or workplace is seen as symbolic of the owner's or occupant's status within the community.

Symbolism, for this discussion, is considered to be the subjective meaning with which one imbues something. A symbol may have multiple meanings, some of which may be quite powerful, having cultural, emotional, spiritual, political, or patriotic connotations, for example. As categorised by Hakansson (1975, p. 84) a sign is considered to be a "signal or communication with a single meaning, understood by all concerned".

Bachofen's explanation may provide further insight:

*The symbol awakens intimations, speech can only explain ...
The symbol strikes its roots in the most secret depth of the soul,
language skims over the surface of understanding like a soft
breeze ... Words make the infinite finite, symbols carry the mind
beyond the finite world of becoming, into the realm of infinite being"*
(Jacobi, in Cooper, 1971, p. 5).

Fitch (1970) claimed that psychic satisfaction is related to physiologic well-

being, in the same way that dissatisfaction is related to discomfort. Therefore, only a condition of optimum levels of sensory stimulation will permit the "fullest exercise of one's critical faculties". Thus, he purported that "man was compelled to invent architecture ...to take the raw environmental load off man's shoulders, ... (to permit) *homo fabricans* to focus his energies upon productive work". Fitch further claimed that the impact of architecture on a person is total, that not only the aesthetic 'eye' must be satisfied but that the impact is felt by the whole sensory apparatus of the person. Therefore, he believed it necessary for a building to meet all mankind's requirements, both objective and subjective; physiological and psychological; pragmatic and aesthetic; in order for people to find it beautiful. Nevertheless, "good, bad, beautiful or ugly, the building is always the expression of somebody's creative ambitions" (1970, pp. 76-84).

Goffman, in his differentiation between front, back and outside regions in the office building, proposed that the conceptual barriers provided by the lobbies, the location and roles of the receptionist and secretary, are "impression managing barriers". He called this "presenting a front", a deliberate strategy that is especially evident when expensive materials and spacious rooms are used in the front regions to express the organisation's corporate image (in Joiner, 1971, p. 8). Such examples of intentional image-fixing are forms of personalisation with varying intentions that are common to people of all cultures who have inhabited buildings through recorded history.

Hakansson (1975, p. 84) claimed that throughout history, people have decorated their bodies with signs and symbols and costumes which were believed to provide "magic protection from demons and evil spirits". This use of symbolic decoration was extended to the dwelling, especially to the entrances which may have been highly decorated or "protected" by the

placement of objects in positions of "symbolic" guardianship. The symbolic meaning of some of those signs may have been lost in the intervening centuries, but the urge to decorate remains strong. The early twentieth century's modern movement in architecture rejected the use of 'applied' decoration, but the design itself of the modern architecture was nevertheless a powerful expression of creativity, carrying with it equally powerful symbolic imagery in some instances. The return of decoration during the ensuing decades, culminated in the apparent loss of symbolic meaning demonstrated in Post Modern architecture. As in sociological Postmodernism, it would seem that, for some, even reality itself has become superficial.

In the matter of symbolism, a building may convey exact, or quite different 'messages' to the individual viewers of and from those which the architect or client intended. Yanow used the metaphor of the "Built Space as a Story" to enhance her argument that the Community Centres (more than one hundred) that had been constructed between 1970 and 1980 in Israel, were indeed communicating a powerful message to the general public they were intended to serve. The dominant central siting, their overall mass and physical 'separateness' with no physical connections to other buildings, the use of grandiose interior spaces, expensive building materials and furnishings, conveyed to low-income local residents a clear message of "difference" and social "otherness" in "marked contrast" to their own residences and lives. Yanow claimed that, according to Edelman, "such a setting 'focuses constant attention upon the difference' creating in the participant a 'heightened sensitivity' to 'connotations and authority'. Removed from the immediacy of the everyday, the resident becomes receptive to the story suggested by the building's symbols" (1995, p. 407-422).

As people age, the need to identify their own abodes by unique personal signs ('Mine has the red door with the potted azalea beside it!' for example), acquires primary importance, especially during the onset of senile dementia (Calkins, 1988). Thus the vital role of 'identification with the built environment' must be seen as a function of the individual's need for orientation which is both systematic; using the sense organs, and symbolic; using the memory-association of such signs to feel again the psychological security that the earlier home may have represented.

Architects have long been accused of imposing their preferred aesthetic images on the buildings they design without sufficient consideration of the personal values of the client or future occupants. Individual units in some multiple storey housing developments designed earlier this century were eventually 'personalised' by their occupants in ways that might have horrified their designers. Hertzberger is one architect who made a practice of promoting the benefits of designing housing units that incorporated a number of opportunities for such personalisation by their occupants. Garages could be reused as spare rooms, balconies become enclosed, or entries enlarged, for example, to suit the needs of the individual (1991).

The task of architects is certainly difficult, although their ideals as a group have included good intentions towards the expression of a socially appropriate aesthetic. Lipman cited "socially-oriented service objectives" for the design of architecture from the architectural literature of the late sixties, that included "social symbolism orientations: (1) to symbolise human values in and via the architecture; eg, buildings regarded as expressions of the 'character and purpose of life within and around them' (and), (2) to express and symbolise the 'feelings' of the age via architecture - architecture as a symbol of the aspirations of a period" (1971, p. 74).

2.3.1.5 Autonomy needs

Privacy needs demonstrated in the control of access to one's office

The autonomy needs, based on Porter's model of work motivation include "control of work situation, influence in the organisation, participation in important decisions, authority to utilise organisational resources" (Owens, 1991, p. 111). These are clearly synonymous with some of the esteem needs and with the need for self-actualisation from which level Porter extracted them. Lang's reinterpretations of Steele's concerns for self-actualisation were also considered to align more appropriately with the autonomy needs. Thus Steele's sociophysical mechanisms of the designed environment relevant to autonomy, were seen to include "choice, access to developmental opportunities, and control" (in Lang, 1987, p. 110).

The school principal, in his or her leadership role, would be in a special position with regard to 'jurisdiction' (the territorial control of an area for a limited time). The very nature of the principal's role means that it would be part of his role-related responsibility to ensure that rules for the use of space within the school are defined and maintained in accordance with either his personal values or those of the 'school as a body'. It has been hypothesised that people have dominance and submission needs that specific physical and social environments can fulfil to some extent. In keeping with the argument of Hamilton-Eddy (1971), the identity of the leader could involve an acceptance of the will and wishes of the funding body and the staff before her own, (which could be seen as related to, if not actually constituting, submissive behaviour), while the egocentric leader might control the utilisation of space in seeking fulfilment of her dominance needs. The appropriateness of the spatial arrangement of the school for their psychospatial security and autonomy needs is inextricably linked to the identity-

behaviours of both the submissive and egocentric (or dominant) principals. It might be said that for the somewhat submissive principal; 'the school might be seen as everyone's domain', and for the egocentric principal it may be the 'exclusive dominion of the leader'.

While the above-mentioned 'official control' of the utilisation of space may assist a complex organisation to function effectively, people, as individuals, need to feel that they can exercise some personal control over their own environment and behaviour. This need may be assuaged if the environment "affords" a choice of actions, for example, in one's preferences to seek or avoid the company of other people. "Freedom of choice is a critical aspect of man's behaviour in relation to his physical environment". The presence of another person or other people in a room may "reduce the freedom of choice if the individual either cannot or will not carry on particular activities in the presence of others" (Proshansky and others, 1970, pp. 175-176). Thus it is essential to understand the important role of privacy for the individual in any study of environmental behaviour.

Westin defined four states of privacy which are; solitude, intimacy, anonymity, and reserve. He considered the four functions of privacy to be autonomy, emotional release, self-evaluation, and protected communication (in Proshansky and others, 1970, pp. 173-183).

Solitude is when one is "alone and free from the observation of others".

Thus privacy may be attained when the person is completely out of sight. He or she may still be able to hear and smell what is happening beyond the visual barrier and feel the same air movements or temperature changes as the people nearby, while continuing to achieve the required feeling of solitude. Muslim women in Saudi Arabia may achieve a different form of

solitude, if alone when hidden behind the intricate screens (rowshans) of their balconies. These finely wrought structures allow the women to see the activity on the street below, but not be seen. Their situation, however, may alternatively be considered an 'imposed' form of reserve.

Intimacy refers to the sort of privacy one may have with another person or within a group. Lovers, family members, or peers, for example, may seek intimacy in situations where external sensory input is minimal. Although this is a shared form of privacy, the requirement for sensory isolation may be even stricter than for solitude. Nevertheless, a couple or group may achieve a state of social or psychological intimacy, without visual isolation, in the company of uninvolved 'others'. A combination of body language 'messages' from the group and adherence to social rules may ensure that other people do not intrude.

Anonymity may be achieved when the person is free from "identification and surveillance in a public setting". This is one form of privacy that can be sought successfully in a crowd of strangers. Anonymity allows the individual to be at ease and any selfconsciousness or inhibitions may be relaxed. Celebrities who are constantly in the public gaze can rarely achieve this form of privacy without applying some form of disguise.

Reserve is the most complex of Westin's states of privacy. This is a psychological form of privacy in which the individual limits his or her communications with others, for whatever personal reason. The 'reserved' type of person may choose not to reveal aspects of him or herself, even in the most intimate situations. Neither the organisation nor the environment influence the achievement and/or maintenance of personal reserve.

The function of limited and protected communication is clearly demonstrated in the actualisation of reserve. The individual with high levels of inner control may be able to exercise sufficient verbal reserve in the presence of persistent influences from other people to maintain his or her privacy needs. Such influences might break down the intention of a less controlled person to reveal private matters of concern. That person, in recognition of his or her low limits of control may therefore retreat to a position of solitude to ensure retention of the necessary privacy in limitation and protection of communication.

Emotional release may be achieved by the exercise of a need for solitude. It is common in some western cultures for people to seek such visual and aural isolation so that they can unleash their emotions fully and express their grief over the loss of a loved one, for example. Some forms of emotional release may best be expressed in a situation of intimacy, wherein one might share one's outrage at perceived unfair treatment at the hands of another, perhaps.

The selective exclusion of the influence of others by seeking a suitable form of privacy may create a much-needed opportunity for self-evaluation. "In a state of solitude or withdrawal during reserve, the individual not only processes information, but also makes plans by interpreting it, recasting it, and anticipating his (or her) subsequent behaviours" (Westin, in Proshansky and others, 1970, p. 177). Thus it may be claimed that privacy establishes a psychological distance.

One of the most important functions of privacy is to "protect and maintain the individual's need for personal autonomy". This form of autonomy ensures the retention of a sense of identity in the exercise of "conscious" choice of both action and milieu. It may also fulfil the need for control of the

environment through one's demonstrated ability to achieve an appropriate form of privacy when needed. Such protection of one's need for personal autonomy may, in the case of the principal or other leader, mean that his or her personal office may be the only place within the school over which they can exercise their jurisdiction in fulfilment of their privacy needs (in Proshansky and others, 1970, pp. 173-183).

The concept of autonomy brings with it an interesting 'twist' when considering that Maslow's hierarchy-of-needs was developed as a theory of motivation. According to Bindra (1959), an activity may be deemed autonomous when it is without underlying motives. Bindra cited Allport's argument that activities can become functionally autonomous (a theory that was not well-received at the time), which means that they can function "independently of the conditions that played a crucial part in their acquisition". He considered also that "such autonomous activities are in some sense 'self-perpetuating' " (Bindra, 1959, p. 295). For the autonomous person in a leadership role, some similarity can be perceived in Allport's theory with the "self-directedness" of the self-actualising person (Maslow, 1964, p. 127).

2.3.1.6 Self-actualisation

Person / environment fit, measured by dependence or independence of environment

From Porter's model, self-actualisation is associated with "working at full potential, feeling successful at work, achieving goals viewed as significant" (Owens, 1991, p. 111). Maslow claimed that, for the self-actualising person, "the environment becomes more and more a means to his ends. This I have called psychological freedom, contrasting with geographical freedom" (1964, p. 128).

The geographical freedom to which Maslow referred has become a common 'ally' of the mobile, motivated career-person this century. The advent of the motor car, the jet aeroplane, the telephone, fax and computer with modem connections to the rest of the world, has meant that the tendency of people to form alliances only among those with whom they associate on a regular basis, no longer limits that circle of influence to the school site. Thus their work-related territorial ranges can encompass many thousands of kilometres with ease.

The person who traverses a widely ranging career-oriented 'home range' may, according to Gouldner, have a "cosmopolitan" orientation towards his or her employing organisation. The individual who chooses to contain his or her work-related 'home range' to the school and its immediate surrounds may be deemed to have a "local" orientation. However, his classifications are more closely dependent on the individual's attitude than their evident physical mobility. He defined the "cosmopolitans" as those whose commitment is to their skills or career path rather than to the fixed place or organisational loyalties of the "locals" (in Owens, 1991). These definitions ought not be confused with the individual's progress towards self-actualisation. Either the local or the cosmopolitan may (or may not) be a fulfilled, self-actualising person who is motivated by growth needs, rather than one seeking basic need-gratification.

Maslow considered the self-actualising person to be growth-oriented and inner-directed. Such a person's "approval, admiration, and love are based less upon gratitude for usefulness and more upon the objective, intrinsic qualities of the perceived person". Conversely, the deficit-motivated or need-gratifying person may see other people in light of their usefulness; as the

admiration-supplier, love-supplier or safety-supplier. Maslow called the former attitude "disinterested" and the latter, "interested" interpersonal relations. These attitudes and behaviours, he claimed, parallel closely the "inner-determined, outer-determined" oppositions of psychology (1964, pp. 126-129).

While the degree of self-actualisation of a person is not being measured (in any way) in this study, it remains a matter of some interest to include Maslow's "clinically observed characteristics" of the people he described as self-actualising.

They all demonstrated:

1. *superior perception of reality*
2. *increased acceptance of self, of others and of nature*
3. *increased spontaneity*
4. *increase in problem-centering*
5. *increased detachment and desire for privacy*
6. *increased autonomy, and resistance to enculturation*
7. *greater freshness of appreciation, and richness of emotional reaction*
8. *higher frequency of mystic experiences*
9. *increased identification with the human species*
10. *changed (the clinician would say, improved) interpersonal relations*
11. *more democratic character structure*
12. *greatly increased creativeness*
13. *certain changes in the value system*

(Maslow, 1964, pp. 118-119)

The key point for this study is that the greater the environmental competence of an individual, the greater the (role-related) behavioural freedom that person has within the built environment, and consequently, the less his or her role-performance is constrained by the social and physical environments.

CHAPTER THREE

METHOD

*Traditional scientific method has always
been at the very best, 20-20 hindsight.
It's good for seeing where you've been.*

Robert M. Pirsig

3.0 PREAMBLE

The research question that generated this study is: 'Could one's work-related role personality, indicate one's building related needs?'. For the purposes of this study, role-behaviour has been adopted as the means by which to identify the role-personalities of school principals who are its subjects. The concept of role-behaviour may encompass a variety of different, habitual activities in different people in different professions. Similarly, the ultimate number and type of idiosyncratic 'needs' that a building might serve to assuage for different people may also provide an impossibly broad palette of alternatives. Therefore, a decision was made to focus on the leadership styles of school principals (as identified by a particular typology) and a limited number of their building-related needs, in order to answer that question. The null hypothesis that: 'One's role-personality alone, cannot indicate one's building-related needs', was assumed. No instrumentation was found to assess Ball's micro-political styles of leadership, or this particular selection of building-related needs. Therefore an important objective became the development of an instrument and a theoretical argument in support of its constructs.

3.1 EPISTEMOLOGY

3.1.1 *Epistemological roots*

The theory of knowledge that underlies this study is not based on any single philosophical epistemology, paradigm, or the like. Of the three main kinds of knowledge; practical knowledge-how, propositional knowledge-that, and knowledge-of (by acquaintance), only the latter two are seen as directly relevant. It has not been the intention of this study to find a causal relationship between the relevant constructs. The most common-sense construction (in this case) formed from any correlations that may be found, must logically be that certain types of people prefer certain types of conditions within the physical environment of the school.

3.1.1.1 Why not knowledge how?

Although a great deal has been written on the subject of why and how certain behaviours and preferences develop in different people, nevertheless, in common with other qualitative research conundrums, satisfactory answers continue to elude the precise definition that might be associated with scientific experiment. Consequently, throughout the conduct of this study, no attempt has been made to follow a positivistic epistemology of causality to prove why or how they occur. There has also been no intention to infer 'architectural determinism'; in that the design of the buildings might 'cause' either the leadership behaviours or the development of the building-related needs of principals. It should be evident from the content and conduct of this study, that such a concept is not being tested herein.

3.1.1.2 Why knowledge-that and knowledge-of?

It may be claimed that elements of 'a priorism' are contained in the theoretical constructs herein. Some readers may assume that the 'truth' of one's need for affiliation, or one's need for autonomy, for example, may be an 'a priori' truth; something that one 'just knows'. With consideration of the construct of leadership, the concept 'to lead' may be considered an 'a priori'

truth that needs no further proof of its existence. It is certainly not a concrete thing that one can feel or see, for example, to 'know' of its existence, even though one may devise ways of identifying those people who do 'lead'. Conversely, it might even be considered that the behaviours and preferences of the subjects of this study may have their basis in empiricism, in that those behaviours and preferences may have, in some way, been derived from sense-perception, or put more simply, from experience. Certainly, the attitudes of the subjects of this study may have links with both those forms of knowledge in the same way as the approach of this researcher might comply with those and other epistemologies. However, notwithstanding what, if any, epistemological or philosophical position one may take, knowledge-that (certain of these school principals prefer 'x' or 'y'), and consequently knowledge-of, 'by acquaintance' or 'by description', must surely ensue from this study.

3.1.2 *Philosophical roots*

Lang (1987) claimed that "the design professions have much in normative theory", which he described as prescriptions for action. However, they are "weak on positive theory" which he described as explanatory theory. The normative epistemology to which he referred has been described in Macpherson (1991) as a critical dimension of philosophy, thereby providing some support perhaps for Lang's claim, because the architecture profession is well-known for being especially strong in criticism; its literature is replete with critiques of buildings. Lang's 'positive' theory does not appear to infer causality. Nevertheless, according to the educational, social science and philosophical interpretations of positivism, a positivistic philosophy or paradigm can be formidable in its apparent inability to accept the validity of phenomenological experience (which is unverifiable). Architecture is for people, and people are phenomenological beings, therefore architectural practitioners and theorists must find a more flexible paradigm or they may

lose touch completely with the needs of those people. The ideal for this researcher, would be to avoid a singular-paradigm-driven approach to theory. An equally acceptable approach for this study, would be the multidimensional, multiperspectival approach proposed by Macpherson (1991) as necessary for effective research into educational administration.

Hodgkinson (1983), reminded his readers of Aristotle's teachings that mankind has three ways of knowing; *theoria*, *techné* and *praxis*. It is these three ways of knowing that best describe the methodology for this project. *Theoria* may describe the phenomenological (experiential) or even interpretive (meaningful) philosophies which might have generated the theoretical justification of constructs. *Theoria* may also describe the gathering and interpretation of the qualitative data. *Techné* may describe the quantitative data collection and statistical analyses of the data from the questionnaire. *Praxis* might best describe the utilisation of the knowledge gained from the overall project. Thus, a synthesis of the qualitative and quantitative aspects of this research in the discussion and conclusions might encourage action with appropriate reflection, to improve the 'lot' of school principals in their often difficult and stressful role.

3.2 THE INSTRUMENT

3.2.1 *Selection of an appropriate method of data gathering*

The building-related needs that form the major component of this study are considered to be directly relevant to the field of environmental perception. For this field, Levy-Leboyer (1982) defined six relevant categories of data, of which only one was pertinent to this study, being, "attitudes to the environment - what the individual expects of his quality of life and the needs which that satisfies effectively" (p. 40). From the table of methods and data

types Levy-Leboyer provided, it was deemed appropriate to use a questionnaire to "gather information about the needs and opinions of subjects in regard to different aspects of their environments" (p. 42).

According to Burns (1994) a questionnaire was also considered to be the appropriate instrument for the assessment of matters pertaining to characteristics of personality, within which category of data, the evaluation of leadership style was assumed to fall. Consequently, a questionnaire was developed specifically for this research.

As a classical method of measuring attitude, the Likert Scale response format was utilised to assess items related to both the theoretical propositions developed from the literature for the building-related needs, and leadership styles in accordance with Ball's definitions (1987) and the descriptions of Macpherson and Vann (1995). The points on the scale were: strongly agree, agree, neutral, disagree, and strongly disagree. Neutral was selected as the appropriate response for subjects who were unable to choose between agree and disagree. This approach, ultimately, was supported by margin notes from respondents. However, it is possible that some respondents may have chosen the 'neutral' response to indicate 'no opinion'. The extent to which this may have occurred would be a limitation to the study.

3.2.2 *Purpose of the questionnaire*

A questionnaire was developed specifically to assess the leadership styles of school principals and a limited number of their building-related needs and preferences, in order to find an answer to the research question on which this dissertation has been based. It was envisaged that further analyses might establish any relationships between those two constructs. Qualitative data were also sought to provide a supplementary viewpoint that might

enrich the findings.

3.2.3 *Description of the questionnaire*

In keeping with its content, the questionnaire was entitled the Architectural Settings and Leadership Styles Questionnaire - ASLSQ. As indicated previously, the questionnaire consisted of three sections. In the first section were 6 items requesting demographic data, in the second section were 35 scale items attending to the research question, and in the third section was one item inviting any further comments.

Items requesting demographic data were included in the ASLSQ, both as variables and to assist in the evaluation of whether or not the sample provided by the voluntary respondents was representative of the overall population. Responses were requested to categories of gender, age, years of experience as a principal, type of school, number of student enrolments, and location.

Scale items consisted of statements prepared from the matrices, the development of which is discussed later in this chapter. Responses were requested using the Likert Scale format of strongly agree, agree, neutral, disagree, and strongly disagree, as described earlier. The order of the 35 items was scrambled for incorporation in the questionnaire proper to overcome any 'donkey vote' bias. All scale items were worded positively.

In the final section, further comments were invited concerning the relationship between leadership and the built environment of schools. A name and address return slip was also included, giving respondents an opportunity to request feedback on the outcomes of the study. A copy of the questionnaire and associated documentation may be found in appendix one.

3.2.4 *Development of the scale items*

Without access to instrumentation to assess either Ball's (1987) micro-political styles of leadership, or the building-related needs of the school principals who formed the subjects of this study, it was necessary to develop an instrument and to attempt a theoretical argument in support of its constructs. Thenceforth, Ball's classifications and his related matrix were adopted, to which the educative style described by Macpherson and Vann was added. A lengthy theoretical justification of a taxonomy of building-related needs was developed, as presented in chapter two of this dissertation. From the constructs within that taxonomy, and from Ching's classifications of spatial organisations, relevant matrices were developed, from which scale items were composed, as described below.

3.2.4.1 *Leadership behaviour*

Ball's (1987) classifications of the micro-political behaviours of school principals provided theoretical and practical support for assessment of the leadership styles of respondents. He identified four styles of leadership: the authoritarian, managerial, interpersonal and adversarial. The educative style of leadership (Macpherson and Vann, 1995) has been strongly promoted and supported recently, therefore it was considered appropriate for inclusion in this study. Table 3.1 below, presents Ball's matrix; "Forms of participation and types of talk in school decision making", to which relevant subscale items have been added to incorporate the educative style of leadership according to Macpherson and Vann (1995).

Ball used three relevant aspects of 'behaviour during decision making' to identify the different micro-political leadership styles. These were: "forms of participation", "response to opposition", and "strategies of control". His matrix incorporated typical behaviours in each cell linked to the relevant aspect of

aspects of the design of spatial organisations were utilised, that might facilitate the identification of the different plans that have been used for schools throughout the world. These aspects were 'focal element of design', 'patterns of movement' (associated with the plan), and 'spatial relationships' (within the plan). From the universal plan 'types' described in the matrix, five scale items were developed that appropriately linked to the construct of security within the taxonomy of building-related needs. For example, the linear classification was represented by the statement, "I prefer the spatial organisation of schools to be 'a linear sequence of repetitive spaces' ".

Table 3.2

SCHOOL BUILDING DESIGN MATRIX
Classifications of Architectural Spatial Organisation
(based on Ching's classifications, 1979)

ARCHITECTURAL SPATIAL ORGANISATION:	FOCAL ELEMENT OF DESIGN:	PATTERNS OF MOVEMENT:	SPATIAL RELATIONSHIPS:
LINEAR	Linearity, incorporating repetition	Limited, axial movement, controlled within the building/s	A sequence of adjacent spaces
RADIAL	The central object, spaces or building, from which linear extensions radiate	Radiating paths extending from, or terminating at, a central point	Spaces radially linked to a focal or central space or spaces
CENTRAL	The large central space around which secondary spaces are grouped	Formal grid of circulation paths within the building	Spaces linked by a single common space
CLUSTERED	The unified nature of the 'whole'	Composite; a combination of path configurations	Interlocking spaces
SCATTERED	Fragmented, variable elements	Informal network of paths	Unconnected buildings

3.2.4.3 Building-related needs

The structure of Porter's adaptation of Maslow's hierarchy of needs (in

Owens, 1991), was utilised as the basic framework for the development of a taxonomy of building-related needs for this project. The matrix in Table 3.3, was developed from this taxonomy and each cell therein describes a concept from which a statement was generated as a scale item for the questionnaire. These scale items, although linked to the constructs within the taxonomy, may not be accepted as a valid 'measure' of those constructs, nor were they intended to be. Consequently, the aim of this part of the research has been to gather data relating to the opinions and preferences of respondents regarding the items, rather than to establish compliance with the constructs. Similarly, as discussed in the introduction, any inference of 'need' has been that of this researcher only, and no attempt has been made to establish whether or not respondents perceive the building-related constructs as 'needs'.

In the development of the building-related needs matrix, three tolerance levels; low, moderate, and high, were tested initially. However the resultant repetition was considered unnecessary and for most items, tolerances were reduced to two. All statements for the questionnaire were worded in a positive fashion, for example "I prefer...", however for items relating to the aural and visual environments under the construct of security (for example), reverse wording was used to assess the higher tolerances. To assess a low tolerance of noise, the item was worded; "I prefer my work environment to be quiet", while the item intended to assess a higher tolerance of noise, was worded; "I accept a degree of noise in my work environment". This strategy was also intended to counteract the 'donkey vote' in which respondents might simply select an agree response to all items, or whatever, without thought of the implications.

For items relating to self-actualisation, autonomy, and affiliation, reverse

meanings were more readily available. The substitution of the word 'inhibits' for 'enhances' sufficed for entirely reversing the meanings of the self-actualisation items. Similarly, the opposing concepts of a 'high degree of privacy' and an 'open door policy', for autonomy, and between 'open plan' and 'enclosed and private' for affiliation, allowed items to remain positively worded while having opposite meanings.

Table 3.3 BUILDING-RELATED NEEDS MATRIX

HIERARCHY OF BUILDING-RELATED NEEDS & TOLERANCES	LOW TOLERANCE OF STIMULI	HIGH TOLERANCE OF STIMULI
SELF-ACTUALISATION: PERSON/ENVIRONMENT FIT Influence of setting on leadership performance	Building's layout and 'performance' often causes frustration in own role enactment	Building's layout and 'performance' rarely affects own enactment of leadership role
AUTONOMY: PRIVACY & CONTROL Own office	Complete privacy	Open access
ESTEEM: STATUS SYMBOLS Expressed in the architectural style of the school facades	Sameness in style; contextual, or institutional image	Freedom of expression; individual style, or unique aesthetics
AFFILIATION: SCHOOLWIDE INTERACTION Degrees of enclosure of classrooms or offices	Enclosed, private classrooms, offices	Open classrooms, open offices
SECURITY: CONTROL OF STIMULI Visual environment: Aural environment: Complexity of plan:	Can only cope with: very tidy school very quiet school linear spatial sequence	Can cope with: visual disorder unstructured noise scattered layout

Three alternatives were maintained in the ASLSQ for subscale items relating to esteem. Although these items might be interpreted as embodying varying 'degrees of complexity', the simplest interpretation is that they each relate to

a different aesthetic and thus may indicate different personal tastes, rather than degrees of the one construct. As discussed previously, five items were included that related to the complexity or familiarity of the spatial organisation. Similarly, these plans might be interpreted as varying in complexity, although the intention herein was to assess preferences rather than degrees of tolerance in both these cases.

A list of the scale items relating to building-related needs, aligned to the matrix reference from which each was determined, may be found in appendix two in the same document as the leadership style items.

3.3 RELIABILITY AND VALIDITY

The reliability and validity of the questionnaire developed for this study has been assessed in a number of ways that are considered separately below.

3.3.1 *Limitations of the ASLSQ*

The limitations to this study have been listed in the introduction and elsewhere throughout this dissertation, wherever deemed appropriate. The major limitations include:

- a restriction of the study population to Tasmanian school principals
- the adoption of Ball's classifications without the support of a proven instrument of measure
- the selection of principals as the subjects through whom to assess leadership, when not all principals are leaders
- the lack of proven instruments to assess building-related needs
- the lack of a pilot study
- any attempt to assess the relative levels of respondents with regard to the taxonomy of needs (for example of autonomy, or self-actualisation), would be beyond the scope of this study

Any, or all of these, and any other limitations mentioned elsewhere might affect the validity and reliability of any findings from this study.

3.3.2 *Face validity*

The wording of statements that were used as scale items for the ASLSQ resulted from an iterative process between the researcher and the research supervisor. Care was taken to ensure that the wording of items from Ball's matrix, for example, used his terminology whenever possible. Repetitive wording of related items was used to ensure consistency of interpretation.

Items using the introductory statement, "I prefer..." are assessing precisely that, which is, the preference of the respondent. As may be recalled, any inference of 'need' for the 'building-related needs' items has been purely that of this researcher. As described in detail earlier, where reverse meaning of items was required, this was achieved without the use of negative statements. Items in which this wording became somewhat imprecise, may have had poor face validity. For example, margin notes by respondents indicate that the use of "I accept a degree of..." may not have been interpreted consistently by respondents, which would be a limitation to the extent that this occurred.

3.3.3 *Construct validity*

In the preparation of this questionnaire, all items were grouped under various relevant constructs to relate directly to the stated aims, which were to assess the leadership style and a limited selection of the building-related needs of school principals. The leadership items were developed simply as a means of identifying how many, if any, school principals utilise the patterns of behaviour associated with each different micro-political style of leadership. A limited number of items relating to the taxonomy of building-related needs

were grouped under the relevant constructs of security, affiliation, esteem, autonomy and self-actualisation. It would have been beyond the scope of this study to develop a sufficient range of appropriate items to 'measure' each construct for this taxonomy, rather, items were simply linked theoretically to the concept of each 'need'. Nevertheless, the results of this survey for these building-related needs items, were envisaged as a potentially sound starting point from which perhaps, to develop such comprehensive 'measures' in the future.

3.3.3.1 Cronbach Alpha

For the leadership items, the Cronbach Alpha coefficient was calculated to assess the relative cohesion (through internal consistency reliability) of these grouped items. Taking all 15 items relating to leadership within the overall group of responses (N=155), the Cronbach Alpha was calculated as .55. This relatively low figure may not be surprising, when consideration is given to the disparate attitudes and preferred behaviours that are encompassed by all those items (N=15). However, once responses were separated into the five different sub-groups according to leadership style classification and extracted as separate bodies of data to enable the next important aim to be tested, a dramatic difference emerged. Thereafter, the Cronbach Alpha coefficient for each of the five different styles of leadership (each in its separated group of responses) was high, indeed a perfect 1.00.

To facilitate a clear understanding of what *was* or was *not* being measured in the small groupings related to each 'building-related needs' construct, the Cronbach Alpha was also calculated for those items. As expected, the overall figure for all the relevant items was very low, as items relate to quite different matters. However, when grouped items were assessed separately, a moderate coefficient of .67 for the esteem needs was noted. The

implications of this matter are discussed in more detail in the final chapter. The four items related to affiliation rated a low coefficient, and several alternative groupings were assessed. Thus, when these items were divided according to the quality of enclosure rather than by type of workspace, items relating to enclosure rated a moderate coefficient of .59, and those for openness rated a slightly lower figure of .56. From this analysis, some understanding has been gained of the effectiveness and usefulness of the internal consistency test, the further implications of which, for relevant items, are discussed in chapter five.

3.3.3.2 Fisher's r-z

Having established internal consistency reliability in all cases relating to each leadership style, the construct validity of those various grouped items were assessed through correlational analysis between grouped sub-scale items using the Fisher's r-z test. For the overall group of leadership items (N=15), when one grouping (of any two items) failed to rate a significant p-value through poor face validity or other cause, the weaker test was utilised with the 'rogue' item assessed against the combined total of all items under the same construct. When this was used, for all but one grouping of two items, a significant p-value of $<.0001$ was attained. Thus, some qualified support was gained for the idea of an overall construct of leadership, with the acknowledgement, nevertheless, that they are overall, somewhat disparate items. However, the Fisher's r-z correlations between all three items under the separate constructs relating to each micro-political style of leadership (in both the whole body of data and in the extracted groups of data according to leadership style), were significant at $P <.05$. These latter results confirm the satisfactory construct validity of the relevant small groups of items relating to the different micro-political styles of leadership.

As may be recalled, the constructs relating to the taxonomy of building-related needs were not being 'measured' by the relevant items. However, all five groups of items except those relating to the plans of schools, produced significant correlations between the two or three related items in each case. These calculations were undertaken with the affiliation items split into two pairs as deemed appropriate from the previous Cronbach Alpha coefficients. These overall results might mean that the correlated items, rather than assessing simple reverse states of the one concept, are in fact assessing quite different aspects of it. Thus, the connection between items is established through the significance of Fisher's r - z test, and the intrinsic differences that do exist in these building-related needs items, are highlighted by the poor internal consistency reliability, in all but a few cases.

3.3.4 *External validity and reliability*

The items assessing leadership style are considered to be universally applicable to principals or any other person deemed to be a leader within a school, therefore enabling these measures to be used elsewhere with equal validity and one would expect, similar reliability.

A universal typology of spatial organisations was utilised to ensure external validity that would enable future replication of the study in other places.

Items relating to the taxonomy of needs within the setting of the school, that were developed for this study, may be considered to be similarly applicable, thus transferable to other studies in other locations, as the preceding two groups of items.

It is cautiously proposed that the representative nature of the responses, which has been established herein and described in the following section,

might support the reliability of the results of this study that have been gained through data analysis.

3.4 POPULATION AND SAMPLE

The ASLSQ was developed and distributed without undertaking a pilot study. This overall project may even be considered to be a pilot study in itself, as the possibility of finding such diverse, precisely classifiable leadership styles from a smaller pilot was initially deemed unlikely.

3.4.1 *Selection of the study population*

Tasmania, through its limited size within its clearly defined boundaries as an island, provided a population deemed to be of manageable size for this study. Consequently, a decision was made to approach all principals of all types of schools within Tasmania. An assumption was made that a principal was the incumbent of a leadership position, thus making him or her eligible to respond to items attempting to assess leadership style. At the same time it was noted that some principals do not enact a leadership role, which might form a limitation to this study.

3.4.2 *Administration of the ASLSQ*

This research was approved by the University Research Ethics Committee and the Department of Education, Community and Cultural Development. An information sheet was prepared for the interest of recipients regarding the purpose of the study, procedures, and confidentiality, and a letter from the dissertation supervisor, inviting participation. These two items, a questionnaire and a return-addressed envelope, were posted to each school principal in Tasmania. A copy of the letter, the information sheet, and the questionnaire, may be found in appendix one.

3.4.3 Validation of the sample

It may be recalled that items requesting demographic data were included in the ASLSQ to enable validation of the sample. Only one respondent failed to include the requested demographics.

3.4.3.1 Analysis of demographic data

Questionnaires were sent to all 319 schools in Tasmania. One instrument was returned due to the closure of the school and two were returned due to the non-existence of a principal or equivalent. These latter two schools are run collaboratively by the teaching staff. The population was therefore 316 principals. The 316 schools included 8 senior secondary colleges, 43 high schools, 50 combined secondary and primary schools (including district high schools), 198 primary schools (including kindergartens) and 17 special schools.

155 questionnaires were returned, which constituted a response rate of 49%. One did not include the requested demographic data. Of the 154 responses known, 47 respondents were female principals and 107 were male. When compared to the population of 97 females and 219 males, responses in both cases were equal by percentage at 49%.

The distribution of respondents by age is compared to the National figures in Table 3.4, below. Comparative figures were obtained from "Australian School Principals: Profile 1994" (Grady and others, 1994).

Table 3.4 **Percentage distribution by age**

	Age groups:			N=154
	30-39	40-49	50-59	60&over
Respondents	13 %	48 %	37 %	2 %
National comparison	17 %	46 %	34 %	1 %

The distribution of responses by years of experience as a principal, is presented in Table 3.5. The sample mean is compared to the National mean from Grady and others (1994), with a further breakdown according to gender.

Table 3.5 Numerical distribution by experience including a further breakdown according to gender

	Years of experience as a principal:					N = 154
	1-5	6-10	11-20	21-30	30 plus	
Respondents	61	31	40	20	2	
Sample mean						10.5 years
National mean						9.8 years
Sample mean according to gender	Female: 7.7 years		Male: 11.8 years			
National mean according to gender	Female: 7.2 years		Male: 10.9 years			

National means obtained from Grady and others (1994)

The distribution of respondents by type of school is compared to the population in Table 4.6 which shows the highest return from senior secondary colleges at 87.5% and the lowest rate of returns from primary schools at 43%.

Table 3.6 Numerical distribution by type of school

	Type of school:					N = 154 (+ 1 undeclared)
	Special	Primary	District	High	College	
Respondents	11	85	25	26	7	
Population	17	198	50	43	8	
Percentage Returns	65 %	43 %	50 %	60 %	87.5 %	

The distribution of respondents by school enrolment figures is set out in Table 3.7 with a further breakdown of returns according to gender and location. Responses were evenly distributed across five of the categories. Of the two remaining, few were received from the over 1,000 category, and

the best response was from schools with between 201 and 300 enrolments. In the latter category, it was noted that a greater number of female principals (21) responded, than did males (12). The disparity of returns according to location, for the 201-300 category was even greater, with 29 responses from city and suburban locations and only 4 from other areas.

Table 3.7 **Distribution by school enrolments**

Student enrolments:	Distribution of responses:				N = 154
	Respondents: TOTAL	by gender:		by location:	
		Females	Males	Cities	Other
1-100	27	13	14	13	14
101-200	22	6	16	10	12
201-300	33	21	12	29	4
301-400	24	4	20	18	6
401-500	20	5	15	15	5
501-1,000	23	7	16	21	2
over 1,000	5	1	4	5	--

The distribution of responses by location is summarised in Table 3.8. A total of 77% of principals from city and suburban schools responded, however only 25% of principals from other locations returned completed questionnaires. From this data it is evident that the sample may not be representative of the population in the matter of location, given the small number of rural respondents.

[illegible]

	Location of school:			N=155
	City (Hobart, L'ton, D'port, Burnie):	Other:	Unknown:	TOTALS:
Respondents	111	43	1	155
Population	144	172		316
Percentage response	77 %	25 %		49 %

3.4.3.2 Conclusions

From comparison of the data obtained, and presented herein, it is cautiously proposed that the sample gained from voluntary response to the ASLSQ, is representative of the study population, thus rendering any findings reliable, as such.

3.5 DISTRIBUTION OF RESPONSES

Likert scales were used in the ASLSQ to ascertain preferences regarding each subscale item. From the responses to these items, scattergrams were formulated to assess the nature of the distribution of those responses. Thus the data generated by each of the questionnaire items were examined for skewness and kurtosis. In many cases (at least 50%) skewness and kurtosis were quite considerable (i.e. considerably removed from zero).

Consequently, it was judged that the data were not always normally distributed and therefore a decision was taken to describe and analyse the data through non-parametric methods.

3.6 QUANTITATIVE DATA ANALYSIS

Descriptive data for all scale items were compiled and analysed for any trends. Demographic distributions of responses to scale items enabled the determination of any statistically significant differences. For the latter tests, the non-parametric equivalents to the t-test were employed, namely the Mann-Whitney U test for variables with two categories, and the Kruskal-Wallis test for those with a greater number of categories.

Classifications of leadership styles were undertaken manually. Each group of three sub-scale items assessing one style of leadership was classified as such, only if all three items rated an agree or strongly agree response. The

three grouped items forming each classifiable response were then combined as a single item and converted to nominal data to facilitate further analysis. For these classifications, the chi square test was calculated for goodness of fit.

A descriptive profile of each leadership style was compiled, using frequency distributions with demographic data as the variables. Correlations between leadership style and building-related needs were then assessed using Fisher's r-z. Statistically significant correlations, each having a p-value of less than .05, were then compiled into a descriptive table.

3.7 QUALITATIVE DATA ANALYSIS

Qualitative data were gathered from the comments included by respondents. These comments were assessed for any consistent themes, then categorised according to their foci. Pertinent comments have also been included in the final chapter to enrich the discussion and conclusions.

CHAPTER FOUR

RESULTS

*When you reach for the stars,
you may not quite get one,
but you won't come up with
a handful of mud either*

Arthur C. Clarke

4.0 PREAMBLE

The results of statistical analyses of quantitative data, classifications of leadership styles, correlational analyses, and assessments of qualitative data obtained from the questionnaire are presented herein.

4.1 DESCRIPTIVE STATISTICS

Descriptive statistics from the analysis of data are presented in separate tables, below. From these tables, the polarity of support and rejection between some items is immediately evident. In order to describe the nature of responses with some accuracy, the 'mean', 'median' and 'mode' have all been included as comparative measures of central tendency. The 'range' is included as a useful but limited measure of variability, therefore the standard deviation (SD) around the mean, calculated from the variance, has also been included, in order to more accurately depict the dispersal of responses. Patterns of distribution noted from the earliest perusal of scattergrams have been confirmed.

4.1.1 *Descriptive statistics relating to leadership style*

The descriptive statistics for scale items relating to leadership style (refer to Table 4.1 below), have exposed varied patterns of support that are, nevertheless, somewhat consistent within each sub-group.

Table 4.1 Descriptive statistics from items relating to leadership style

Style of leadership:	Descriptive Statistics:				N=155
Item	Mean	Median	Mode	SD	Range
INTERPERSONAL:					
Informal chats, personal consultation, lobbying 1103	3.314	4.000	4.000	1.042	4.000
Fragment and compromise 2008	2.908	3.000	2.000	1.047	4.000
Private performances of persuasion 1713	2.680	3.000	2.000	0.998	4.000
MANAGERIAL:					
Formal committees, meetings and working parties 1502	3.699	4.000	4.000	0.851	4.000
Channel and delay 2807	3.804	4.000	4.000	0.866	4.000
Structuring, planning, control of agendas, time and context 2212	4.242	4.000	4.000	0.744	4.000
ADVERSARIAL:					
Public meetings, open debate 0204	3.314	4.000	4.000	0.997	4.000
Confront 3309	3.033	3.000	2.000	1.003	4.000
Public performances of persuasion 3514	3.052	3.000	4.000	0.937	4.000
AUTHORITARIAN:					
Prevents public access to voice 3001	2.850	3.000	2.000	1.069	4.000
Stifle 0406	2.725	3.000	2.000	1.053	4.000
Insulation, concealment and secrecy 0611	1.895	2.000	2.000	0.912	4.000
EDUCATIVE:					
Collaboration, rituals, ceremonies 2505	4.503	5.000	4.000	0.619	3.000
Win/win negotiations 1010	4.176	4.000	4.000	0.919	4.000
Find common ground for motivation and commitment 2715	4.301	4.000	4.000	0.660	4.000

Consistently strong support is shown for both the managerial and educative

scale items. The wide range of dispersal for both constructs (across 4 scales), may be misleading, as the SD indicates a moderate spread around the mean, which result has been relatively consistent between the related items.

The adversarial and interpersonal items rated only moderate support with the medians at 3, and even 4, among the items, but with the modes as low as 2 in several cases. While the ranges of all these remain at 4, the SD for the majority of these items indicates a higher standard deviation in the dispersal of responses than for the previous two constructs.

The authoritarian items rated consistently low support, associated with a higher SD, concomitant with the distributions for the adversarial and interpersonal items. One item under this construct, scored the lowest mean of all items. This item, 0611; "Leaders need to insulate and conceal issues and maintain confidentiality during decision making" obviously suffered a significant rejection from respondents.

Conversely, the educative item 2505; "Leaders need to have decisions made through collaboration", recorded the highest support of all items. The mean was 4.503, the median a very high 5, and the range was limited to 3, with a standard deviation of .619, which was the lowest SD of all items, all of which indicate a tight, high response distribution.

4.1.2 *Descriptive statistics from the taxonomy of needs*

The descriptive data from items related to the taxonomy of needs has been divided into separate tables. Less consistency has emerged in the patterns of support and rejection of these items than for the leadership items.

The items relating to self-actualisation gained only moderate to low support, with a wider spread of distribution indicated by a higher SD. Refer to Table 4.2, below for more details.

Table 4.2 Descriptive statistics from items relating to 'self-actualisation', from the taxonomy of building-related needs

Building-related need:		Descriptive Statistics:				N=155
Item		Mean	Median	Mode	SD	Range
SELF-ACTUALISATION:						
<i>Person/environment 'fit'</i>						
Layout of school inhibits performance 2116		2.752	2.000	2.000	1.096	4.000
Layout of school enhances performance 0117		3.026	3.000	4.000	1.164	4.000

Items related to autonomy attracted high support for an open door policy and moderate to low support for privacy from respondents. Dispersion of responses to these items (SD) ranged from low to high, respectively. Refer to Table 4.3, below.

Table 4.3 Descriptive statistics from items relating to 'autonomy', from the taxonomy of building-related needs

Building-related need:		Descriptive Statistics:				N=155
Item		Mean	Median	Mode	SD	Range
AUTONOMY:						
<i>Control of own privacy needs</i>						
Privacy for own office 1218		2.889	3.000	2.000	1.156	4.000
Open door policy for own office 1819		4.379	4.000	4.000	0.688	4.000

All three items relating to 'esteem' had strong support from respondents, with consistency between the mean, median and mode in each case. Range was medium to wide and the standard deviation was limited. Refer to Table 4.4,

below.

Table 4.4 Descriptive statistics from items relating to ‘esteem’, from the taxonomy of building-related needs

Building-related need:		Descriptive Statistics:				N=155
Item		Mean	Median	Mode	SD	Range
ESTEEM:						
<i>Status, expressed in aesthetic of school facades</i>						
Contextual image for school						
0920		4.085	4.000	4.000	0.688	3.000
Symbolic image for school						
0521		3.732	4.000	4.000	0.881	4.000
Unique image for school						
3222		3.712	4.000	4.000	0.775	4.000

Affiliation items attracted poor to moderate support (at best) over all four items relating to the openness or enclosure of classrooms and staff offices. As may be confirmed from Table 4.5, below, the range for these items was consistent at 4, with moderately high standard deviations from the mean.

Table 4.5 Descriptive statistics from items relating to ‘affiliation’, from the taxonomy of building-related needs

Building-related need:		Descriptive Statistics:				N=155
Item		Mean	Median	Mode	SD	Range
AFFILIATION:						
<i>Enclosed, thus impermeable workspaces</i>						
Enclosed, private classrooms						
1423		2.255	2.000	2.000	0.977	4.000
Enclosed, private staff offices						
0724		2.510	2.000	2.000	1.033	4.000
<i>Open plan, thus permeable workspaces</i>						
Open plan classrooms						
2425		2.876	3.000	2.000	0.996	4.000
Open plan staff offices						
2926*		3.000*	3.000*	3.000*	0.874	4.000

* Item displays perfect normal (Gaussian) distribution around the mean, median and mode (0.000 skew)

Security items related to the visual and aural environments attracted strong

support, except for one item (2629), indicating a preference for quiet, which had moderate support only. All the items relating to the plans of schools received either moderate or low support. Two items were strongly rejected by respondents, showing their evident dislike of the linear and scattered school plans. The range of responses for all plan items indicated low to moderate standard deviation.

Table 4.6 Descriptive statistics from items relating to 'security', from the taxonomy of building-related needs

Building-related need:	Descriptive Statistics:				N=155
Item	Mean	Median	Mode	SD	Range
SECURITY:					
<i>Visual environment</i>					
Tidy work environment 1927	4.118	4.000	4.000	0.707	3.000
Accept visual disorder in work environment 3128	3.575	4.000	4.000	0.841	4.000
<i>Aural environment</i>					
Quiet work environment 2629	3.261	3.000	4.000	0.902	4.000
Accept noise in work environment 1330	3.928	4.000	4.000	0.640	4.000
<i>Familiarity or complexity of plan</i>					
Linear spatial organisation 0831	1.987	2.000	2.000	0.669	3.000
Radial spatial organisation 1632	3.183	3.000	3.000	0.729	4.000
Centralised spatial organisation 2333	3.105	3.000	3.000	0.812	4.000
Clustered spatial organisation 3434	3.412	3.000	eq.3&4	0.774	3.000
Scattered spatial organisation 0335	2.144	2.000	2.000	0.976	4.000

4.2 DEMOGRAPHIC DISTRIBUTIONS OF RESPONSES TO SCALE ITEMS

4.2.1 Statistically Significant Differences

Demographic categories were used as dependent variables to test for any

statistically significant differences in responses across all scale items.

The Mann-Whitney U test (a non-parametric equivalent of the t-test), was used for the categories pertaining to gender and location because each contained only two sub-categories. Six items therein exhibited statistically significant variations ($p = < .05$).

Statistically significant variations in response to two items were on the basis of gender. To item 2116; "The functional design of my school inhibits my leadership performance" ($Z = 2.517$, $p = .012$), males recorded a mean rank of 81.9 while females responded lower at 62.5. To item 2425; "I prefer classrooms to be open plan" ($Z = 2.478$, $p = .013$), females recorded higher preferences by indicated by a mean rank of 89.3 than did men at 70.2.

Four items registered statistically significant differences according to location. In item 2425; "I prefer classrooms to be open plan" respondents from cities recorded higher preferences at 80.7 than other locations at 61.6 ($Z = 2.353$, $p = .019$). In item 2629; "I prefer my work environment to be quiet", higher preferences for city respondents were recorded at 80.5, while other locations recorded a mean rank of 62.1 ($Z = 2.321$, $p = .019$).

Preferences according to location were reversed for the other two items. Respondents to item 0521; "The architectural image of a school should reflect its symbolic importance to the community" ($Z = 2.077$, $p = .038$), recorded a lower mean rank of 71.1 for cities and a high 87.1 for other locations. In item 3222; "The architectural image of a school should express its unique nature", responses indicated a low 71.2 for cities and a higher mean rank for other locations at 86.9 ($Z = 2.025$, $p = .043$).

Since the remaining demographic categories had more than two sub-

categories, the Kruskal-Wallis test was used. No significant variations were found in relation to years of experience, type of school or student enrolments.

When it came to age, item 0204; "Leaders need to have decisions made through public meetings and open debate", generated a barely statistically significant variation ($H = 2.959$, $p = .047$). Principals aged 30-39 recorded 93.6 against a low mean rank of 26.5 from those aged 60 or over. Principals aged 40-49 recorded 71.8 and 50-59 year olds recorded a mean of 76.2.

4.3 CLASSIFICATIONS OF LEADERSHIP STYLE

Responses to the subscale items relating to leadership styles were classified as managerial or educative for example, only if all three related items in each case rated an agree or strongly agree from the respondent. Such responses were converted to nominal data to facilitate further statistical tests. Thus an agree or strongly agree response to all three related items rated one (1) and neutral, disagree or strongly disagree became zero (0). One only, or even two agree or strongly agree responses out of the three, also rated zero (0).

Distributions of those classified responses are presented in Table 4.7 where it may be seen that a greater number of respondents preferred educative and managerial approaches to decision making than the authoritarian, adversarial and interpersonal styles [according to the classifications of Ball (1987), and Macpherson and Vann (1995)]. All respondents who were classified as authoritarian and interpersonal style leaders actually rated mixed classifications only, recording classifiable responses to one or more other styles of leadership as well.

A total of 57.3% of respondents overall recorded multiple classifiable decision making preferences that have been interpreted as mixed leadership

styles. Table 4.7 (below) shows the actual mixed classifications of respondents.

Table 4.7 Leadership style classification of respondents

Leadership styles:	Distribution of responses: N = 155	
	Respondents:	% Returns:
Educative	40	26.0
Managerial	10	6.3
Educative/Managerial	56	36.0
Educative/Managerial/Authoritarian	1	.6
Educative/Authoritarian	1	.6
Managerial/Authoritarian	1	.6
Adversarial	3	2.0
Educative/Adversarial	3	2.0
Educative/Managerial/Adversarial	7	4.5
Educative/Managerial/Interpersonal/Adversarial	4	2.6
Educative/Managerial/Interpersonal	8	5.2
Educative/Interpersonal	8	5.2
Unclassifiable	<u>13</u>	<u>8.4</u>
TOTAL:	<u>155</u>	<u>100 %</u>

An important aim of this study was to test for any correlations between each separate (singular) leadership style and building-related needs. In order to facilitate those tests, the actual mixed classifications were separated into singular categories of leadership style. Thus all 87 respondents who were classified as managerial, including 10 who were ‘pure’ classifications and 77 of mixed classification, for example, have been listed as managerial under the singular (unmixed) categories of leadership styles in Table 4.8, below. It will be noted therefore, that the totals therein are necessarily greater than the 155 respondents, due to overlap from the mixed classifications.

The fractionally reduced figures in Table 4.8 were calculated from the actual mixed classifications in Table 4.7. These were obtained by reducing each mixed respondent to the appropriate fractional figure for each classification.

For example, a respondent who was classified as educative/managerial was considered to be half educative and half managerial. Similarly, a respondent who was classified as educative/managerial/adversarial, was considered to be one third educative, one third managerial, and one third adversarial, and so on. All of these fractionally reduced figures were then totalled to ensure accuracy and used as the basis for the second chi square goodness of fit tests, undertaken as a double-check against the mixed classifications.

Table 4.8 **Distribution of leadership styles
by decision making preferences**

Leadership style:	Distribution of total classifiable responses:			N = 155
	TOTAL:	Pure:	Mixed:	Fractionally Reduced Totals:
Authoritarian	3	-	3	1
Managerial	87	10	77	45
Adversarial	17	3	14	8
Interpersonal	20	-	20	8
Educative	127	40	87	80
Unclassified	13	13		13
				Total 155

4.3.1 Chi square test for goodness of fit

The chi square test was calculated from the figures in Table 4.7. The complexity and thus perceived unpredictability of those actual mixed classifications may leave room for doubt, therefore the chi square was also calculated for the pure categories of (unmixed) leadership style preferences from the fractionally reduced equivalent figures in Table 4.8. For both sets of figures, including the unclassified respondents as a category, the chi square was significant (@5df, $\chi^2 = 170.000$, $p < .0001$) and the null hypothesis of no real difference between observed and expected frequencies is rejected. Thus, the differences were not due to chance (Burns, 1994).

4.3.2 *Descriptive profile of principals according to leadership style classification*

A descriptive profile of principals was compiled for the singular (but not only pure) classifications from the 'TOTAL' figures in Table 4.8. Thus, for example, all 17 respondents who rated an adversarial classification (which therefore included both the 3 'pure' and 14 'mixed' classifications by which they had been identified), were separated as a group from the body of responses and analysed for the descriptive profiles shown in Table 4.9, below. Therefore total data necessarily exceeds the 154 respondents, due to the overlap from those of mixed classification.

As mentioned previously, one respondent did not include demographic data, therefore could not be included in this profile (Table 4.9). That person was classified as an educative / interpersonal style of leader, therefore it may be noticed that the totals for the educative and the interpersonal styles are each, necessarily, one less than may be calculated from Table 4.8. In the breakdown according to gender, responses according to leadership style classification are generally close to the ratios of respondents in the overall sample. A notable exception is the interpersonal style, in which there are far less females than males.

According to age, it is interesting to note that the three respondents classified as authoritarian, lie within the 30-39 and 40-49 age groups. The remainder of respondents distributed according to leadership style, align with the overall sample, in which the majority fall within the 40-49 and 50-59 age groups.

The distributions according to experience, type of school, enrolments, and location are all consistent with the distributions for the overall sample.

Table 4.9

Profiles of principals
according to singular leadership style classification

Leadership style by demographics		Frequency distributions:										N = 154	
		Authoritarian		Managerial		Interpersonal		Adversarial		Educative		Unclassified	
		N	%	N	%	N	%	N	%	N	%	N	%
GENDER:													
	Female	1	33%	29	33%	3	15%	5	31%	41	33%	3	23%
	Male	2	67%	58	67%	16	85%	12	69%	85	67%	10	77%
AGE:													
	30-39	1	33%	13	67%	2	10%	1	6%	20	16%	0	
	40-49	2	67%	45	52%	8	43%	9	53%	58	46%	7	55%
	50-59	0		27	31%	7	37%	7	41%	45	36%	6	45%
	60+	0		2	2%	2	10%	0		3	2%	0	
EXPERIENCE:													
	01-05	2	67%	34	39%	6	32%	6	34%	54	43%	3	23%
	06-10	1	33%	22	25%	3	16%	4	24%	25	20%	2	15%
	11-20	0		18	21%	6	32%	3	18%	28	22%	7	55%
	21-30	0		12	14%	4	20%	4	24%	18	14%	1	7%
	30+	0		1	1%	0		0		1	1%	0	
TYPE OF SCHOOL:													
	Special	0		5	6%	1	5%	0		9	7%	2	15%
	Primary	1	33%	46	53%	10	53%	8	47%	73	58%	7	55%
	District	2	67%	16	18%	2	10%	2	11%	18	14%	2	16%
	High	0		13	15%	5	27%	5	31%	21	17%	2	16%
	College	0		7	8%	1	5%	2	11%	5	4%	0	
ENROLMENT:													
	001-100	2	67%	15	17%	1	5%	3	18%	24	18%	2	15%
	101-200	0		12	14%	5	27%	3	18%	17	14%	3	23%
	201-300	0		18	21%	3	16%	3	18%	27	21%	3	23%
	301-400	0		14	16%	2	10%	2	11%	19	15%	3	23%
	401-500	0		9	10%	3	16%	3	18%	17	14%	0	
	501-1000	1	33%	15	17%	3	16%	1	6%	17	14%	2	15%
	1000+	0		4	5%	2	10%	2	11%	5	4%	0	
LOCATION:													
	City	2	67%	58	67%	13	68%	10	59%	89	71%	9	70%
	Other	1	33%	29	33%	6	32%	7	41%	37	29%	4	30%

NB Of the total of 155 respondents, one did not supply demographic data, therefore could not be included in this table

4.3.3 *Correlations between leadership styles and building-related needs*

When considering the actual mixed classifications of respondents, numbers within all but three groups were too small to undertake Fisher's r-z correlational analysis and p-value calculations by StatView. Therefore it was

decided to separate data according to each singular leadership style from Table 4.8, in the same manner as utilised for Table 4.9. Thus, all 86 respondents who rated a managerial classification for example (regardless of any actual mixed classifications they had been given), were separated as a group from the body of responses and subjected to Fisher's r-z correlational analysis. Respondents who were classified as authoritarian numbered only three, and were therefore evaluated from visual perusal without calculations as p-values could not compute.

The group of respondents deemed 'unclassifiable', have not been included in the results of the correlational analysis shown in Figure 4.10, because there were no leadership style scale items specifically designed to assess their category. Their grouping as 'unclassifiable' has been by default rather than by compliance with a predetermined construct. All correlations for the classified groups were assessed through the use of those 'leadership style-specific' scale items as the dependent variables.

For self-actualisation, both the adversarial and educative styles of leadership exhibited a positive correlation with item 0117, indicating that school layout is regarded as being related to enhanced performance.

Regarding autonomy, the managerial style principals recorded a positive correlation with item 1218; recording agreement with privacy for their own offices. Conversely, the authoritarian, interpersonal and educative styles all recorded positive correlations with item 1819, in agreement with an 'open door' policy for their personal offices.

Under the construct of esteem, positive correlations with either two, or all three items regarding the aesthetics of the school, were recorded by the authoritarian, managerial and educative styles of leadership. The adversarial style of leadership however, recorded significant negative

correlations with items 0521 and 3222, thus indicating a disagree or strongly disagree response to items regarding the use of symbolic and unique aesthetics for the school. The significance of these results will be discussed in chapter five.

Table 4.10 Statistically significant correlations between leadership style classifications of respondents and their building-related needs

Building-related needs:		Fisher's r-z correlations with leadership style, incl. p-values: N=155									
		Authoritarian corr'n	P=	Managerial corr'n	P=	Interpersonal corr'n	P=	Adversarial corr'n	P=	Educative corr'n	P=
SELF-ACTUALISATION:											
Layout enhances performance 0117								.528	.028*	.201	.024*
AUTONOMY:											
Privacy 1218				.243	.024*						
Open door 1819	positive					.500	.024*			.246	.005**
ESTEEM:											
Contextual aesthetics 0920	positive			.271	.012*					.212	.017*
Symbolic aesthetics 0521	positive			.214	.048*			-.809	<.0001**		
Unique aesthetics 3222				.215	.046*			-.604	.009**	.208	.019*
AFFILIATION:											
Enclosed classrooms 1423								-.676	.002**		
Enclosed offices 0724	negative							-.694	.001**		
Open plan offices 2926										.213	.017*
SECURITY:											
Prefer tidy 1927				.367	.0004**	.509	.021*	.537	.025*	.208	.019*
Cope with disorder 3128	+1.000			-.252	.019*					.211	.017*
Prefer quiet 2629				.295	.006**						
Cope with noise 1330	positive			-.248	.021*			-.515	.033*		
Linear plan school 0831	negative							-.636	.005**	-.213	.016*
Scattered buildings 0335	-1.000									-.209	.019*

* p < 0.05,

** p < 0.01

N.B. Most 'correlations' with the Authoritarian style were assessed by observations, as StatView calculations were impossible

For affiliation, the educative style of leadership recorded a positive correlation with item 2926, indicating agreement with open plan classrooms. The adversarial style registered a negative correlation with items 1423 and 0724 indicating disagreement with the concept of enclosed classrooms and offices. The authoritarian style similarly recorded a negative correlation with item 0724.

Regarding the construct of security, seemingly complex results of both positive and negative correlations were recorded. The authoritarian style recorded positive correlations with items regarding a tolerance of both disorder and noise, and negative correlations with items for the linear and scattered plans of schools. Both the interpersonal and adversarial styles recorded a positive correlation with item 1927 regarding a preference for tidiness, while the adversarial style recorded a negative correlation with items regarding a tolerance for noise and the linear plan of schools.

The managerial style rated a positive correlation with the item indicating a preference for tidiness, and a negative correlation with the item indicating an ability to cope with disorder. They also recorded a positive correlation with the item indicating a preference for quiet, and a negative correlation with the item indicating a tolerance of noise.

The educative style however, recorded positive correlations for both item 1927, regarding a preference for tidiness and item 3128, regarding an ability to cope with disorder. The educative style respondents share with others, a negative correlation with items relating to the linear and scattered plans of schools.

All of the correlations discussed here may be seen in Figure 4.10, above.

4.4 QUALITATIVE DATA ANALYSIS

Respondents to the ASLSQ were invited to include "Any further comments concerning the relationship between leadership and the built environment of schools?". A total of 55 respondents subsequently incorporated words of wisdom, opinions, preferences, constructive criticism, advice and both negative and positive comment. A number of respondents also made relevant comments, within the ASLSQ, on individual scale items. This qualitative data was subjected to analysis to enable categorisation of the comments given.

4.4.1 Themes

Comments were initially separated into basic categories relating to leadership style / decision making, or building design, or any other topics. These were broken down further into sub-categories according to any recurring themes that emerged through analysis.

Of the 20 respondents who commented on scale items relating to the decision-making preferences, almost all commented on the perceived difficulty in answering what were seen as "*black and white questions*" to address "*complex issues*". Several respondents queried the meaning of 'need' in relevant scale items. Several more expressed concern regarding items inferring a preference to 'persuade', 'control', or 'confront' during decision making. The following examples may elaborate their concerns:

...in some cases...answers...may be misleading with the question not lending itself to across-the-board statement. Sometimes the situation posed would bring strong agreement and others disagreement. Circumstances can vary considerably with any form of decision making and situations vary enormously

...e.g. what does 'need' mean? Different circumstances can be approached with different strategies but 'need' seems to imply

universal (always)

...have hesitation at use of CONTROL...

CONFRONT...yes, in terms of openly addressing the issue...but not in terms of 'power play'

Negative comments were received from five respondents in general condemnation of the questionnaire. Their comments included the following examples:

Some of your questions are repetitive and ambiguous...

...this survey is quite insensitive to the realities that govern schools (and)...some issues involve material that cannot be made public

I don't know why I bothered. I can't see that work put in on this will ever make any difference to the ed. outcomes of students

The majority of respondents who included comments, gave sound advice or simply their personal view of the concept of the relationship between leadership and the built environment of schools. Their words of wisdom may be interpreted from the following citations:

The built environment can be a positive or negative factor in any work situation - the more pleasant and practical the surroundings, the more likely the people are to have time and be prepared to be involved...

A fine building may enhance the work of a good leader, but it won't make a whole lot of difference to those who don't have the skills...

...different styles of leadership - even from the same individual - and 'yes' the style is sometimes influenced by the spatial environment just as it is by other environments

The built environment can facilitate leadership but is not the controlling factor

From the comments relating to buildings, a number of themes were identified that constituted sub-categories. The first of these presented, concern the respondents' acceptance or acknowledgement of existing conditions within their schools and their difficulties or successes with those environments.

We live, in older schools, with a legacy of ad hoc developments that were usually constructed without consultations with those who use the facilities. If buildings are inherently 'unfriendly' to community, parents and visitors, it is so much more difficult to make schools welcoming.

Leaders must accept the environment they are appointed to and do the very best to 'make it work' to benefit the teaching and learning program. It is not always possible to change the physical environment.

I work in a school built in 1942. Its buildings, grounds, teaching spaces are totally inappropriate for children and teachers of the nineties - yet we are a very successful school!

The difficulties faced in some old schools may be understood from the following examples:

It would give us all more time for educational leadership if the buildings weren't in such a state of disrepair that it takes most of the budget to repair years of departmental neglect.

Our school is currently undergoing refurbishments. This is severely disrupting our operation. Some teaching staff are not coping with change at all.

Several respondents commented on the importance of appropriate provision and utilisation of spaces within a school, the enhancement of communication and accessibility that the built environment might facilitate. For example:

For the principal, the built environment should enhance interactions with staff and students and provide relatively easy access (via the school office) to the public.

The creative and varied utilisation of spaces to promote student learning outcomes, and shared responsibilities, and teaming, and effective utilisation of resources is part of the process of vesting 'power' with all school members.

Sufficient space is more important than the architectural and aesthetic considerations.

The matter of aesthetics, both generalised and specific, were matters of concern to some respondents. For example:

The influence of the leader in maintaining the overall appearance of the built environment is critical. This in turn has an effect on parents, students, community and staff.

It is important that a school environment is as aesthetically pleasing as possible. Good signage is very important.

*Sunny, bright rooms more important than classroom arrangements.
(and) high ceilings and no concrete block walls more important than arrangement of rooms.*

At least four respondents commented on the architectural determinism that they perceive has occurred within their personal experience. That is, they believe that the design of the buildings has influenced strongly, or even determined, the behaviour of the occupants. The following examples state clearly, their views regarding the impact of the design of the built environment, on the sociological climates of their schools.

A fractured building design makes mutual support among staff difficult, and inhibits the linking of different learning areas.

Our school has 2 sites - this inhibits most activities of a collaborative nature... .

Isolated buildings tend to result in less interchange of ideas and discussions and hence the formation of small 'cliques'. This tends to mean a great deal of walking and small group discussion for the leaders to help build and maintain the sense of collaboration and team work.

Time constituted a concern for several respondents, as the following examples may confirm:

<i>Issues of</i>	<i>Time</i>
	<i>Space</i>
	<i>Environment</i>
	<i>Energy</i>
	<i>Educative Leadership</i>
	<i>Convenience</i>
	<i>Type of Response</i>

Nothing mentioned about the time to move around the built environment.

It would give us all more time...if the buildings weren't in such a state of disrepair...who has the luxury of worrying about spatial arrangements !!!

Many other comments are as worthy of citation as those quoted above, therefore a number have been utilised to enrich and explain relevant issues in the discussion and conclusions in chapter five.

In the following (final) chapter, all the results presented in this chapter are summarised and enlarged upon in the light of any significance perceived to attach thereto.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

From the end spring new beginnings

Pliny the elder

5.0 PREAMBLE

At the conclusion of this research, when consideration is given to the quotation from Ruskin with which this dissertation was introduced, one can understand how he came to make such a boast as "Tell me what you like and I'll tell you what you are". The correlations between leadership style and building-related needs that have emerged through statistical analysis herein, have indicated that there does appear to be a relationship between what one likes and what one is. While the differences according to the various styles of leadership have not been sufficiently different for this researcher to boast (as humorously suggested in the introduction), "Tell me what building-related preferences you have and I'll tell you what style of leader you are", the differences that do exist have, nevertheless, served to challenge the null hypothesis somewhat.

5.1 ACHIEVEMENT OF AIMS

The first aim of this study, to assess the leadership styles of principals according to the micro-political styles identified by Ball (1987) and Macpherson and Vann (1995), has been achieved. Ball's contention that the leadership behaviour of individual principals would, in reality, often manifest as a mixture of those styles, has also been supported.

The second aim, to assess the (school) building-related needs of school principals has been equally successful. As discussed in more depth later, the concept of 'needs', having different interpretations for different people, was rephrased as 'preferences' for the questionnaire items, in an attempt to ensure consistency of interpretation and thus some reliability in responses.

The final stated aim was entirely dependent on the (hoped for) classifications of leadership styles. Thenceforth, correlational analysis established that **statistically significant relationships** between different leadership styles and certain of the building-related needs constructs, **do appear to exist**. As stated earlier, no attempt has been made to infer a causal relationship between the two, rather, the preferred interpretation is that of an affiliative relationship.

5.2 FINAL STATUS OF THE RESEARCH QUESTION

*Could one's work-related role-personality
indicate one's building-related needs?*

At the conclusion of this dissertation, the answer to that research question is both yes and no, as further elaboration later in this discussion may clarify. Therefore, the null hypothesis, that: 'One's role-personality alone, cannot indicate one's building-related needs', may be considered 'shaken' but not quite rejected. Nevertheless, contrariwise, neither can it be said that the null hypothesis has been supported adequately.

As indicated previously in the introduction, the concept of role-behaviour was adopted as the means by which to identify the work-related role-personalities of the school principals who form the subjects of this study. Consequently, the micro-political leadership styles of school principals, that had been identified by Ball (1987), and the educative leadership ideologies (translated

into behaviours) described by Macpherson and Vann (1995), were utilised through the style-specific decision making strategies described in chapter two, as the preferred basis from which to assess the role-behaviours, and thus identify the work-related role-personalities of these subjects.

All of the statements that constitute the scale items to assess levels of support for decision making strategies (thus leadership styles), include the introductory phrase, "Leaders need to...", which was used repetitively to ensure consistency. The word 'need' was used in (or was certainly intended to be interpreted as) its 'verb intransitive' form, thus "designating a verb which expresses an action or state limited to the subject" (New Expanded Webster's Dictionary, 1988).

With specific regard to the items under the various constructs of 'building-related needs', it is important to clarify that what has been sought through these items has been the preferences and opinions of respondents in all instances. The implication of 'need' therein has been purely that of this researcher who believes that such preferences may conceivably indicate a deeper psychological need. They may do so, or indeed, they may not. The lengthy theoretical justification of the taxonomy of building-related needs in this dissertation has been an attempt to present an argument based on the literature, in support of that belief. At no time during the conduct of this research, has there been an attempt to *prove* by measurement or any other method, that such preferences are perceived to be needs by respondents.

As mentioned earlier in this dissertation, the relative levels of security, affiliation, esteem, autonomy, or self-actualisation of respondents were not being measured from these questionnaire items. What was assessed through the two relevant items for self-actualisation, for example, was the

opinion of respondents regarding the capacity of their current school layout to either enhance or inhibit their leadership behaviours. Such an opinion cannot be considered a *measurement* of the level of self-actualisation of the respondent, for which, further relevant tests would be needed.

With all of the above constraints in mind, the decision making preferences and a limited selection of the building-related preferences of school principals were assessed through the questionnaire. From responses to the relevant items, the leadership styles of principals were classified, thenceforth enabling a correlational analysis with their individual building-related preferences. Various distributed among the five different groups of respondents according to leadership style, a total of 35 statistically significant correlations were found with 15 of the building-related 'needs' items. The compilation of all these statistically significant correlations into a table (Table 4.10) allowed the full picture to emerge. The direct contrast between the negative correlations associated with the adversarial style of leader and the positive correlations associated with the educative style of leader, for example, make the rejection of the null hypothesis for the research question seem a reality. To this end also, the managerial style principals would appear to have established a level headed, 'self-aware' approach to their own needs that might enable reliable predictability in their case. However, when it is noted that eleven building-related 'needs' items had each rated significant correlations with between two and four of the different styles of leadership, even though some may be positive and some negative, the chances of a confident rejection of the null hypothesis fade from view.

5.3 RELIABILITY AND VALIDITY

The sample of the population who formed the subjects of this study through their voluntary responses, have been considered by this researcher, to be

representative of the study population. According to gender, the response has been almost perfectly representative, and according to age, responses were consistent with the national population but a little older, while for the other categories, where comparative data were readily available, the responses, although not perfectly representative, did not leave any sub-categories unsupported.

With regard to the external validity and reliability of this research, the representative nature of the sample, as discussed above and in chapter three, has enabled some cautiously confident generalisations to be made, regarding school principals in Tasmania. The method of assessment of the building-related preferences of the respondents (and even the results) may be considered relevant, thus possibly comparable to persons in similar leadership positions in other professions where their tasks are comparable. It is expected that the method of assessment of the leadership styles of the subjects and the further tests undertaken herein, would be transferable to other school principals in other places. However, as these constructs have been based on profiles that were specifically constructed of school principals, there may be some discipline-specific differences that might compromise its use outside education. The concept, however, is entirely transferable.

There is no doubt that the study undertaken herein, through the administration of the questionnaire and the subsequent tests, can be repeated.

Matters relating to the internal validity are also discussed in more detail, wherever relevant to various scale items throughout this chapter. Construct validity has been established for the separate constructs of managerial,

adversarial, interpersonal, authoritarian and educative leadership. Thus, this part of the instrument would appear to be a valid measure of the micro-political styles of leadership of school principals.

The constructs related to the taxonomy of needs however, were not intended to be measured by the items to which they have been linked theoretically for this study. Nevertheless, grouped items relating to esteem and affiliation to a lesser degree, proved to be both internally consistent and correlated. All the results of the validation tests for the taxonomy items have highlighted the potential for future development of a series of comprehensive measures for the 'building-related needs' constructs.

5. 4 SIGNIFICANCE OF RESULTS

The issues that emerged from the various qualitative and statistical analyses of data, are discussed below in the light of any significance perceived by this researcher, to attach to those findings. Any interpretations of the direction or implications of any significance attributed to these results are necessarily the subjective opinions of this researcher even notwithstanding that such an opinion may have been based on strong support from the literature, or even from margin notes by respondents. The significance of the findings according to leadership style has been assessed on the basis of an acceptance of the face value of the responses. Any such significance (regarding any or all questionnaire items), might variously be related to: the methodology, the wording of the questionnaire items, the implications for the school principals, or the implications for the architectural profession.

5.4.1 *Decision making preferences associated with leadership style*

The preferences of subjects regarding decision making strategies were used

as a means to classify their styles of leadership. Ball (1987) had used three different aspects of decision making in his matrix, from which relevant questionnaire items were constructed for this dissertation. According to comments included in the responses, some conflict was felt with the wording of some items relating to several different styles of leadership . A number of respondents objected to words such as persuade, control, and confront. Ball however, used words such as stifle, compromise, confront, concealment, control, and persuasion, therefore leaving the researcher with but one conclusion. The respondents who were so offended were clearly not aligning themselves with the leadership style or styles that utilise those strategies. The fact that respondents were able to be classified according to all of the categories identified by Ball and Macpherson, means that there were some subjects who obviously had no objection to those terms. The greatest of care was taken with wording the questionnaire items, nonetheless their content was often complex, and comments relating to that complexity must be accepted as valid. For example, one respondent commented beside two relevant items, *"two items in one question"*, each of which he had consequently divided, writing agree to one concept, and disagree to the other. Several other respondents had similar concerns.

While the rewording of controversial items might be an option for a future study, the sentiments of this researcher's earlier comments remain valid. Apart from the complexity of some items, the 'offensive' wording does reflect Ball's typologies, which surely must validate their use. Ball's prediction (now supported) of mixed, rather than pure manifestations of the styles within the population, is reflected somewhat by the following quote from a respondent; *"There are various decisions made giving due regard to the context of the particular decision. The one universal way of making decisions is inappropriate. The real art (mostly its not a matter of skill) of good leadership*

is knowing what to do in any given situation”.

5.4.2 Building-related needs

As clarified in more detail earlier, what has been assessed through these items has been the preferences and some opinions of respondents, and any implication of need has been purely that of the researcher.

5.4.2.1 Security needs

Even though this construct was not being measured by the scale items, it is through the construct validation tests that it has been possible to elucidate what has been measured by the items relating to the plans of schools. Many respondents recorded neutral responses for three of these items, for which, only relatively small numbers of respondents recorded either an agree or disagree response. The clustered 'plan type' item, 3434, was obviously not understood by one respondent who wrote alongside, *“don't know what this means”*. A similar lack of understanding may have affected other respondents. However, two items from this group recorded strongly negative responses, indicating that subjects were only too familiar with both those plan types and had consequently registered their strong disapproval. In confirmation of this result, significant negative correlations between these two items and several different leadership styles were noted in later analysis.

Such an overwhelming rejection of those two plan types indicates that those items were well understood by respondents and it may be assumed, especially given the straightforward nature of their wording, that those items at least, were measuring what the researcher thought they were measuring. The comment offered by one respondent may provide the answer to this apparent problem. He stated; *“I have limited experience in places of varying design. So it is hard to comment.”*. The plan types for this study were

chosen for their perceived universal applicability rather than being location-specific styles. No research into the spatial organisations of schools actually within Tasmania, has been undertaken for this project, and it is possible that the variety of plan types therein may be limited. Therefore those principals who have worked only within this state may share with the respondent cited above, a similar limitation to their experience in schools of varying designs. Thus, it has been assumed that the dominant aspect through which some of these school plans items might have been assessed, may have been their 'familiarity', rather than their hypothetical potential as a preferred setting.

Nevertheless, some respondents had clearly taken the time to think about the implications of each plan type (even when they may not have ever worked within such a school) and had recorded agreement or disagreement with all relevant items accordingly. A good example of such a response from one principal was supported by the following comment, when he wrote, "*built environment should be practical, easily accessible, consider factors of noise, use, distance, **central focus** (e.g., staff / administration)*".

The negative responses to the items relating to the two controversial types of spatial organisation, may have connotations linking them to the psychic security 'needs' discussed in chapter two. Thus it may well be that the principals who so strongly rejected the linear and scattered typologies, retain unpleasant associations with these (plan) types of schools from their own schooldays. Otherwise their rejection might simply (and unfortunately) be related to their experiences and difficulties within those schools as a principal or as a teacher. Nevertheless, either way, they have clearly expressed a negative form of 'identification with place' that might inhibit their potential for optimum performance within those school (plan) types at the present time or even in the future.

Some conflict was also evident in responses to items relating to tidiness and disorder. Significant positive support was registered for both item 1927, relating to a preference for a tidy environment, and for item 3128, indicating a tolerance of some disorder. Initially, such apparently conflicting responses (if measuring as hoped, opposing views of the one concept), exposed a lack of consistency between these items. For item 1927 (tidy), statistically significant positive correlations were recorded with four of the five styles of leadership. However, from the same analysis for item 3128 (untidy), a significant negative correlation with the managerial style of leadership emerged, while a positive correlation emerged with the educative style, which latter classification, alone, constituted the majority of respondents. While the wording of the two items relating to disorder and noise each begin with the phrase, "I accept a degree of..." (disorder or noise, etc.), which may have been inconsistently interpreted by respondents, nevertheless, doubts remain concerning the cause of this problem. These are discussed in more detail later in this chapter.

When considering preferences regarding the aural work environment, respondents from cities understandably recorded significantly higher preferences for quiet (item 2629) than those from the country. The researcher has used the word 'understandably' intuitively in this instance. Nevertheless, it may well be that principals who work in the noisier environment of cities, do value a quiet workplace more highly than those from the quieter external environment generally associated with a rural location, for example.

In the earliest analysis, through the scattergrams, positive support was noticed for responses to item 1330, indicating a tolerance of some noise.

However, significant negative correlations of this item with two different leadership styles emerged from later analysis. From these apparently conflicting results, it was originally thought that the negative correlations may indicate that persons who disagreed with items relating to the managerial and adversarial style items, had registered agreement with item 1330. However, that construction is impossible, as the correlational analysis concerned, was undertaken only with the extracted samples (according to leadership style classification), in which all respondents had registered agreement with the leadership items in each case.

Low alpha coefficients confirmed the lack of consistency in responses to all these items relating to security, even though separately grouped correlations were significant.

5.4.2.2 Affiliation needs

A bi-modal response was recorded for item 0724, indicating a relatively even distribution of agree and disagree responses regarding a preference for enclosed, private staff offices. In spite of this, through the later correlations with leadership style, a significant negative correlation emerged with two styles of leadership. As these correlations were with the adversarial and the authoritarian classifications, the small numbers therein could account for the apparent anomalies.

Regarding open plan classrooms (item 2425), significantly higher preferences were recorded for females, as well as for respondents from city locations. A totally unsupported (and somewhat simplistic) connotation that may be drawn from the preferences of city principals for open plan classrooms, is that their choice may be related to the lack of open space in their general external environment, while the country respondents might prefer enclosed classrooms, as a consequence of having an overabundance

of open space in their general external environment.

The variance in responses to affiliation items has already been discussed, however the confident division and pairing of items that the Cronbach Alpha tests facilitated, even though greatly improved, did not produce very strong support for construct validity. With regard to the enclosure or openness of staff offices, it was evident from margin notes that some principals may have thought only of teaching staff, rather than administrative staff as well, for these items. It might also be possible, from the low to moderate overall support recorded for all these affiliation items, that such matters are not important to many principals.

5.4.2.3 Esteem needs

Construct validity was established of the grouped items relating to the esteem needs. The assumption of the researcher was, that these three items were measuring disparate aspects of aesthetics: contextual, symbolic, and unique. However, the results of subsequent series of analyses have shaken that assumption. Positive support was noted for all three items, two of which were supported by significant differences according to location. Country respondents rated higher preferences for both symbolic and unique aesthetics than did city respondents. Significant correlations, both positive and negative, were subsequently recorded for two, or all three items, with four different leadership styles.

For these items, the calculated construct validity must be disregarded. The realisation has emerged that this is a case where the architectural profession (through this researcher) and the public (through these principals), may have different interpretations of the meanings of those aesthetic terms. If that is not so, then the understanding of this researcher, of the near-impossibility of

creating a contextual style building that also possesses a unique aesthetic, is not shared by these respondents. It would seem to be a contradiction in terms because something contextual blends in, while something unique stands out. The use of the term symbolic may have been a mistake. The original intention was to refer to hierarchy in that item, and perhaps that would have been better. As argued earlier, symbolism cannot be imposed at the will of either designer or client; any symbolic meaning can only be interpreted by the observer.

5.4.2.4 Autonomy needs

Items relating to the construct of autonomy were assessed through the preferences of the subjects regarding relative levels of privacy for their personal offices. For item 1218, bi-modal responses were noted, indicating a relatively even division of agreement and disagreement with a preference for a high degree of privacy. Nevertheless, the managerial style of leader, as a group, recorded a positive correlation with this item. Item 1819, indicating a preference for an 'open door' policy, recorded strong support. Also, for this item, positive correlations were recorded with the authoritarian, interpersonal, and educative styles of leadership.

Although not supported with significant correlations with both the relevant opposing items, some conflict was evident in respondents regarding the perceived requirement to maintain an 'open door' policy to conform with the current 'fashion'. Early perusal of responses revealed 51 subjects who agreed with both items regarding privacy, conversely indicating agreement with an 'open door' policy and at the same time, indicating a requirement for a high degree of privacy. It may be that these principals agree with the concept of the open door policy, but may, at the same time therefore, be struggling with their personal need for privacy being denied. The following

comment is apt; *"what one prefers is not always possible, i.e., operate on an 'open door' policy even though this means that work is constantly disrupted and must often be done at home"*. Perhaps solitude may be the state of privacy required by these people in order to enable limited and protected communication as well as to ensure the most relevant function of privacy for this study, which is to protect and maintain the individual's need for personal autonomy. This matter is considered to have serious implications which are discussed later in this chapter.

5.4.2.5 Self-actualisation

For both items related theoretically to self-actualisation, moderate to low support was recorded by subjects. Nevertheless, in the distribution of responses according to gender, for item 2116, significantly more men found the layout of the school inhibited their leadership performance than did women. Positive correlations were recorded of item 0117, indicating that layout enhances performance, with both the adversarial and educative styles of leadership. Nevertheless, without the necessary internal consistency, it is entirely possible that the responses to these items might fundamentally differentiate between indicating an ideological viewpoint, which is likely for item 0117, in which environment 'enhances performance', and a reality-based denouncement of an existing, inadequate physical setting indicated by support for item 2116, 'layout inhibits performance'. In the latter case, respondents may be unable to function adequately, perhaps due to poor thermal conditions, inadequate maintenance, or simply inappropriate planning of the physical environment of their schools. This possibility is supported by Maslow's concept of a hierarchy of needs, in that such unfulfilled lower order needs (in this case the basic physiological needs) may inhibit the development of the higher order needs motivations. Of course, the denial of basic physiological comfort may inhibit effective function

of any other sort.

5.4.3 *Classifications according to leadership style*

As discussed previously, the successful classification of respondents according to leadership style became the fulcrum of this dissertation, enabling further analyses and thus, the opportunity to gain further insight.

When the descriptive profiles of the school principals (according to leadership classification) were completed (refer to Table 4.9), the overall results were relatively consistent. Regardless of the size of the sample under each classification, the distributions according to demographic categories were quite even. However, the breakdown of the interpersonal style according to gender, provided an unexpected result. In this style of leadership the emphasis is on the 'personal' and 'consideration' of staff is high. Therefore, when looking through the 'lens of a stereotype' one might have expected more women to be an interpersonal style of leader than were men. However, that is not the case in the sample at hand. The distributions of gender in all other classifications ranged around 30% female and 70% male, however, the interpersonal breakdown was 15% female and 85% male. This result leads one to the possibility (quite unsupported), that the women who reach the principalship, may gain that position through having been seen to perform 'just like the men' rather than through following the female gender stereotype. Nevertheless, it might just be that the stereotype is completely wrong and male school principals are just as likely to place consideration of their staff to the forefront as female principals.

The broader significance of the classification of leadership styles according to the preferred micro-political behaviours utilised by the individual, is that the results of this method may assist in better understanding the school

principals in Tasmania (and perhaps, elsewhere). Other forms of classification according to introvert / extrovert type personality scales, or according to people or process orientations remain relevant, however the method utilised in this study is role-personality-based and thus related specifically to school principals and therefore must surely add much more relevant detail to any understanding of 'what makes these people tick' (to coin a very apt colloquialism).

5.4.4 *Correlations between leadership style and building-related needs*

Many of the statistically significant correlations between leadership style and building-related needs items have been introduced to this discussion already, in relation to specific items. Several patterns that emerged invited further attention. The most pressing concern is the conflicting responses from the educative leaders with regard to tidiness and disorder. Their situations may be similar to that with regard to the 'open door' policy for the principal's office, and the need for privacy. In this case, there would appear to be no 'fashion' for tidiness or disorder in the ethos of the currently popular leadership promotions. It may be that these people believe that either one preference or the other is 'the right' approach, when their real preference is for the opposite. Maybe not, but if so, why have these people, 'en masse', agreed to both proposals? Exactly as in the situation for the 'open door' policy and privacy, this researcher believes that these dichotomies may highlight a degree of inner conflict in some, and a lack of decisiveness in many, that may certainly indicate confusion, and might even be the 'indicators' that some of these people may be feeling the effects of 'excess stress'. Otherwise, there may simply have been a significant 'donkey vote'.

The managerial style of principals would appear to have no such problems.

Their responses to opposing items regarding tidiness and disorder, and to those regarding quiet and noise, appropriately recorded positive and negative correlations as this researcher had expected. Such consistency in their preferences indicate that the managerial principals were in no doubt about their needs in those matters. The apparent confusion indicated by the conflicting responses of the educative style principals to these items, had cast doubts. Had it not been for the undeniable clarity of the managerial response, the validity of those items may have been totally unsupported.

5.4.4.1 Comparative analysis of results with Ball's descriptions

Ball's descriptions of the typical behaviours associated with the different styles of leadership that he identified, included far more content than could be encompassed by the decision making strategies (used herein) alone. A number of those typical behaviours included leadership 'style-specific' utilisations of the built environment. When comparing the correlations between leadership style and the building-related needs, which were found through this study, with the broader scope of Ball's descriptions, some notable similarities and differences were found which are discussed below.

From this analysis, the authoritarian responses appeared atypical to the type. However, as the numbers within this group were so small, their non-conformance cannot be considered reliable.

Ball's descriptions of the managerial style of principal did not include building-related elements of behaviour, although he did point to the broad scope of personalities who might nevertheless operate under a managerial umbrella. As pointed out previously, this group of managerial principals responded with evident unanimity regarding their building-related

preferences. Perhaps the security of a managerial ideology has allowed their evident self-awareness to develop unhindered.

According to Ball, the interpersonal principal's office necessarily operates on an open door policy and his or her door is often open quite literally. In confirmation of this, those in the sample having the interpersonal style recorded a statistically significant positive correlation with a preference for the open door policy for their personal offices.

The adversarial style of principals presented a resounding response in keeping with Ball's broader descriptions. These principals typically use the built environment to their advantage, which is confirmed by their opinions herein, that their school layout enhances their performance. Similarly, the negative correlations registered for the concepts of enclosed classrooms and offices, align with the 'type' as enclosed rooms would not facilitate the open debate through which (Ball claims) these adversarial principals operate. Ball's observation of their need for openness and their use of the public arena for debate are also consistent with the rejection herein (by the adversarial principals in this study) of the linear plan, which, in its older traditionally restricted rectilinear format, could not possibly provide that 'arena-like' setting.

The educative style principals affirmed their preferences for collaboration, mutually beneficial negotiations and the need to find and maintain a commonality of focus. Their significant positive correlations recorded with the items indicating: that layout enhances performance, a preference for an open door policy, and agreement with the concept of open plan offices, indicated (to this researcher) a confirmation that the open and accessible environment may be the ideal setting for the interactive nature of the

educative approach.

5.5 FURTHER IMPLICATIONS AND CONCLUSIONS

The classification of the leadership styles of school principals, notwithstanding the controversy that certain relevant items generated for a limited number of respondents, needs little further discussion. The classifications according to Ball (1987) and Macpherson and Vann (1995) have been supported, thus providing a new and pertinent dimension to the profiles of school principals, that is wholly relevant to the study of educational administration.

With the benefit of hindsight, it would have been very useful had a pilot of this study been undertaken at least four to five years previously, before the ideologies of the educative style of leadership were promoted within Tasmania. Nevertheless, a similar study (to allow a comparison), if undertaken perhaps five years hence, might indicate how well the educative style has been retained by school principals.

When considering responses to items relating to the taxonomy of needs which constituted the other variables for this study, however, a more detailed summing up is necessary. The further implications of these results will be considered below.

Further insight from close interpretive analysis of responses to items related to self-actualisation has highlighted the potential problems an inadequate environment might be for these principals. A total of 47 subjects agreed that 'The functional design of my school inhibits my leadership performance', and 8 of those strongly agreed. Therefore that problem encompasses some 30% of the principals who responded to this survey. School principals, surely,

have enough responsibilities dealing with the day-to-day exigencies associated with their role without having to cope with an inadequate, or worse, an obstructive physical environment as well.

With regard to the autonomy needs, this researcher remains concerned about the 'conflict' evident from some responses. While the tendency of these respondents to agree with both (opposing) items regarding privacy, was not supported in the correlational analysis, nevertheless 51 respondents (33% of the total sample), expressed a requirement for a 'high degree of privacy' for their own office, and conversely, agreed that their office should have an 'open door policy'. As discussed earlier, this situation may be considered similar to the dichotomy of the tidy or disordered environment. In this case however, at the higher levels of administration, one's needs for a respite from the demands of everyone else can become acute, and this can only be met by the attainment of one's requirement for some privacy. Those who are not able to obtain some privacy, may conceivably become excessively stressed, and this is the situation in which the built environment can become the ameliorating factor. The solution might be very simple. If the office has a door, then shut it. If the current 'best practice' says keep the door open, does it also give guidelines for the otherwise avoidance of excessive stress? Gmelch's work (1983), clearly defined the dangers of stress in educational administration, and it also clearly defined a number of solutions. In his chart, "From disability to ability", Gmelch claimed that the first step towards the alleviation of stress in the person facing "burnout", is to "break up continuous people contacts" (1983, p. 8) and this is what the exercise of one's right to privacy would go some way to achieving.

Regardless of the 'interesting' results in response to the items regarding the esteem needs, it is evident that the appearance of the school is considered

important to the authoritarian, managerial and educative principals. However, the adversarial principals disagree. In this case it may be assumed that this is simply a case of the individuals exercising their judgment in 'taste', or it may be that the adversarial principals have already satisfied their esteem needs in other ways. For those as yet unsatisfied regarding the esteem needs, should their school plan fit the situation cited below, some feelings that may be likened to esteem may ensue. In this example, *"The location of principal's office at 'front' of school perpetuates an hierarchical structure"*, and such a situation might allow some school principals to feel their important position is 'rightfully' represented by the prominence of the location of their office. However, this situation (unfortunately), could create difficulties with regard to affiliation, depending, of course, on the arrangement of the rest of the plan, and the sentiments of hierarchy are somewhat out of tune with the collaborative / cooperative ideologies that are evidently so popular at this time.

Regarding the affiliation needs, the results of this study have indicated that respondents are fully aware of the advantages of having some openness to offices and classrooms. Whether their views concern the facilitation of the teaching and learning programme or whether they are aware of the advantages with regard to opportunities for interaction amongst staff, their preferences (recorded herein) would allow for the latter anyway. In this matter, few problems are perceived. Of course, this assumption is not to say that some principals do not feel isolated and lacking affiliation. One respondent's experiences in several schools has highlighted the potential that the design of the school can have to significantly affect one's opportunities for affiliation. *"This question (of the relationship between leadership and the built environment of schools) can depend on school size. In...(one place) I was in charge of a...(school) of 400. My office opened onto*

the school yard. I found I knew and related well with students. Then I moved to...(another place) in charge of...(another school) of 400 where my office was in a special admin. block remote from the general pathways and the staff room. Not so good for relationships. In my present school...I need a certain isolation because of the size of the school." Thus, in the same manner as the process of decision making, different situations benefit from different strategies. As discussed previously, when first moving to a new school, a principal may face resentment and a lack of cooperation from staff. This would be a case when a relatively open plan environment might facilitate interaction and ease the difficulties of the transition phase that is always associated with 'change' to some extent, for all parties concerned. Even in the older traditional school buildings with fully enclosed rooms there is a solution available, for example, *"Your built environment is a 'given' - being prepared to work collaboratively and to open classroom doors can have impressive effects whatever design your school has".*

The security needs have been discussed at length previously and the major problem perceived is that of the conflicting responses from the educative principals. The results taken overall have indicated some disparity in attitudes between the styles of leadership for this section, except for the matter of the plans of schools. The significant rejection registered herein of the linear and scattered school plan types, must surely give warning to both the controlling / funding authorities, and to the architectural profession. Furthermore, the problems with the scattered typology, which have been highlighted in comments cited previously, are affects which those planning 'ever bigger and bigger' schools might do well to consider.

The concluding sentiments of this discussion might benefit from the inclusion of some positive comments regarding the problems with the linear and

scattered plan types for schools. The examples of the linear plan that have created the evident dislike, ought not influence the wholesale rejection of the typology, as there exist some schools based on the linear plan that are highly successful. The exemplar designed by Foster and Associates (James, 1995), which has been used to illustrate the linear style of spatial organisation outlined in chapter two, does not attract the negativity of the responses herein. According to television interviews with the principal and the students of the exemplary linear plan school, the incorporation of communal areas, including the wide, double height internal street and a generous amount of glazing, thus connecting a pleasant exterior environment with the interior, has provided an (interior) architectural setting that has a positive effect on its occupants.

When the relevant authorities are planning future new schools or extensions that will lead to a new scattered site plan, or complicate an existing one, it may be of great benefit to consider the advantages of the Tanbridge House School (Waldron, 1994), that has been built in West Sussex County in the U.K.. This school undeniably qualifies for a scattered classification, but follows the principles of the spatial relationships that create a village. The concept of the village has been used to relate directly to the immediate context of the two schools which this new larger one has replaced. The 'school as a village' concept has been used in Tasmania. Whether these Tasmanian examples were based on a similar intention to Tanbridge House, and whether these have been successful or not, would depend on a number of factors that are not entirely relevant to this purely speculative discussion, and especially as such an argument would be unsupported by any evidence.

With regard to the taxonomy of building-related needs utilised herein, this researcher is coming to believe that the separate stages of the hierarchy on

which it was based (as defined by Maslow and varied by Porter), may be significantly more inter-related or even interdependent in far more complex ways than his original concept might have allowed. The sometimes conflicting responses received from the questionnaire developed for this dissertation have reinforced the previously developing basis for such ruminations and in some cases have provided unexpected insights.

The role-personalities of the individual may differ considerably from one sphere of his or her life to another. One needs no theoretical justification to facilitate acceptance of the concept that one may have three or more role-personalities in the one person. For example, one's work-related role-personality as a principal may differ from one's home-life-related role-personality as a partner or parent, and one may, as many do, have a disparate social-life role-personality with regard to recreational activities or community responsibilities. These differences are universally known and accepted in the practice of architecture, wherein the sensitive design will accommodate those idiosyncrasies by providing for the public faces, the semi-public zones, the private zones and the semi-private zones that a client might prefer.

An acceptance of the concept of multiple role-personalities in one person, makes the following proposition become viable. Thus, the person who may be seen as relatively self-actualising in his or her working role, having little need for the symbolic expressions of rank that relate to the esteem needs, may nonetheless, in other areas of his or her life, perhaps through a disintegrating family life, for example, almost completely lack self esteem, thus also losing an essential sense of psychic security. A balance throughout one's various roles may be the ideal to enable the attainment of a fundamental state of self-actualisation.

In conclusion, for those school principals whose school buildings may be; too cold, too hot, poorly maintained, inappropriately planned regarding the spatial organisation, or which may have negative psychological associations, this final quotation from a respondent, is only too apt;

"Unfortunately, the life of buildings is greater than

- *leadership style*
- *teaching methodologies*
- *decision making processes, and*
- *institutional images"*

Anonymous.

5.6 FUTURE DIRECTIONS

"Where the principal goeth, so goeth the school and the students within it".

If this is true, the functioning of principals ought to be a concern.

This research has shown there is likely to be a relationship between a principal's building-related needs on the one hand, and their leadership style on the other. If any incongruence between these (in any situation) exists, it may be that some sort of tension will build up with the principals and, indeed, between the principals and others in the school. Therefore, school principals ought to be educated or encouraged to become aware of their own building-related needs, and as to how to enhance their environmental competence in the optimum utilisation of their buildings to their advantage. To the extent they cannot change their built environment, they will at least be aware of a likely source of their problem and take appropriate steps, such as seeking counselling for example, to alleviate their stress.

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APPENDIX ONE

**QUESTIONNAIRE,
INFORMATION SHEET, AND
LETTER INVITING PARTICIPATION
AS POSTED TO ALL SCHOOL PRINCIPALS IN TASMANIA**



UNIVERSITY OF TASMANIA

**Leadership and the Built
Environment of the School
Research Project**

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October 10, 1996

**The Principal
All Schools of Tasmania**

Dear Colleague,

I seek your help to relate the leadership style of principals and their building-related needs and preferences to the physical environment of schools.

The questionnaire attached has been constructed very carefully to measure how leadership styles relate to schools' built environments. It is a relationship that has not been researched before.

Please be assured that there is no penalty for non participation, all responses will be rendered untraceable and the findings will be reported without reference to any individual, school or system. Confidentiality and anonymity are guaranteed.

Since the quality of the analysis is dependent on a high rate of return, please try to set aside the 15-20 minutes required to complete and mail the attached instrument. A pre-addressed envelope is enclosed for your use.

I look forward to your views.

Thank you.

Yours sincerely,

R J S Macpherson

**TRADITIONS OF
EXCELLENCE**

Architectural Settings and Leadership Styles Questionnaire ASLSQ

INFORMATION SHEET

Title of investigation

Leadership and the Built Environment of the School

Names of investigators

Chief investigator: Assoc. Prof. R.J.S. Macpherson
Student investigator: Mrs. P. Kaye Clark

Purpose of study

To relate the leadership styles of Principals, and their building-related needs and preferences, to the physical environment of the school.

Criteria for inclusion/exclusion

Since the Principals of Tasmanian schools are assumed to provide leadership, they are invited to complete the questionnaire relating their leadership to the school's built environment. No payment will be made for participation. Participants may opt to receive a copy of results using the enclosed form.

Study procedures

All participants will be given a copy of this information sheet and the questionnaire attached.

Basic demographic data will also be sought. Data analysis will be conducted using Statview.

Confidentiality and Risks

Returned questionnaires will be rendered untraceable. All data will remain anonymous. No risks are envisaged.

Freedom to refuse or withdraw

Participation is voluntary and there is no penalty for non participation.

Contact persons

Respondents may seek clarification from Kaye Clark, phone 03 6331 6025, or Dr Macpherson, phone 03 6324 3489. This research has been approved by the University Research Ethics Committee and the Department of Education, Community and Cultural Development. The contact for concerns of an ethical nature should be directed to the Chair, Research Ethics Committee, Dr Margaret Otlowski, phone 03 6226 7569, or Chris Hooper, Ethics Officer, phone 03 6226 2763.

ARCHITECTURAL SETTINGS AND LEADERSHIP STYLES QUESTIONNAIRE - ASLSQ

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Demographic Data

GENDER Please tick the appropriate box

Female	Male

AGE Please tick the appropriate box

20-29	30-39	40-49	50-59	60 +

YEARS OF EXPERIENCE AS A PRINCIPAL Please tick the appropriate box

1-5	6-10	11-20	21-30	31 +

TYPE OF SCHOOL Please tick the appropriate box

Special	Primary	District High	High	Secondary College

STUDENT ENROLMENTS Please tick the appropriate box

1-100	101-200	201-300	301-400	401-500	501-1000	1001 +

LOCATION Please tick the appropriate box

Hobart, Launceston, Devonport or Burnie	Others

Preferences

Please circle one of the five codes alongside each proposal:

SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree,
SD = Strongly Disagree.

- | | |
|--|-------------|
| 0117. The practical layout of my school enhances my leadership performance | SA A N D SD |
| 0204. Leaders need to have decisions made through public meetings and open debate | SA A N D SD |
| 0335. I prefer the spatial organisation of schools to be separate buildings that are scattered across the site | SA A N D SD |
| 0406. Leaders need to control oppositional activities during decision making | SA A N D SD |
| 0521. The architectural image of a school should reflect its symbolic importance to the community | SA A N D SD |
| 0611. Leaders need to insulate and conceal issues and maintain confidentiality during decision making | SA A N D SD |
| 0724. I prefer staff offices to be enclosed and private | SA A N D SD |
| 0831. I prefer the spatial organisation of schools to be a linear sequence of repetitive spaces | SA A N D SD |
| 0920. The architectural image of a school should blend in with its context | SA A N D SD |
| 1010. Leaders need to negotiate for win/win outcomes when faced with opposition during decision making | SA A N D SD |
| 1103. Leaders need to have decisions made through informal chats, personal consultation and lobbying | SA A N D SD |
| 1218. As a leader, my personal office should have a high degree of privacy | SA A N D SD |
| 1330. I accept a degree of noise in my work environment | SA A N D SD |
| 1423. I prefer classrooms to be enclosed and private | SA A N D SD |

1502. Leaders need to have decisions made through formal meetings, committees and working parties	SA A N D SD
1632. I prefer the spatial organisation of schools to be a series of linear sequences of spaces radially linked to a central point	SA A N D SD
1713. Leaders need to persuade individuals privately during decision making	SA A N D SD
1819. As a leader, my personal office should have an 'open door' policy	SA A N D SD
1927. I prefer my work environment to be tidy	SA A N D SD
2008. Leaders need to negotiate compromises in private to accommodate oppositional activity during decision making	SA A N D SD
2116. The functional design of my school inhibits my leadership performance	SA A N D SD
2212. Leaders need to provide processes, plans and properly structured agendas for decision making	SA A N D SD
2333. I prefer the spatial organisation of schools to be a central dominant space about which a number of secondary spaces are grouped	SA A N D SD
2425. I prefer classrooms to be 'open plan'	SA A N D SD
2505. Leaders need to have decisions made through collaboration	SA A N D SD
2629. I prefer my work environment to be quiet	SA A N D SD
2715. Leaders need to establish common ground with colleagues during decision making	SA A N D SD
2807. Leaders need to ensure that oppositional activity during decision making goes through the proper channels	SA A N D SD
2926. I prefer staff offices to be 'open plan'	SA A N D SD
3001. Leaders need to control participation in school decision making	SA A N D SD

- | | |
|--|---------------------|
| 3128. I accept a degree of visual disorder in my work environment | SA A N D SD |
| 3222. The architectural image of a school should express its unique nature | SA A N D SD |
| 3309. Leaders need to confront oppositional activity in open forums | SA A N D SD |
| 3434. I prefer the spatial organisation of schools to be a cluster of spaces linked by proximity | SA A N D SD |
| 3514. Leaders need to persuade individuals publicly during decision making | SA A N D SD |

Comments

Any further comments concerning the relationship between leadership and the built environment of schools?

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..... **Thank you for your time and consideration.**

----- (to be detached) -----

Feedback (Optional)

Please send an analysis of findings to me at the following address:

Name: Postal Address:

..... Post Code

APPENDIX TWO

QUESTIONNAIRE STATEMENTS AND THE MATRIX ITEMS FROM WHICH THEY WERE GENERATED

QUESTIONNAIRE ITEMS LINKED TO MATRIX REFERENCES

MATRIX REFERENCE: Listed first in each instance
ITEM: Listed below it in each instance

Leadership Style Matrix Reference: FORMS OF PARTICIPATION

AUTHORITARIAN "Prevents public access to voice"
3001 *Leaders need to control participation in school decision making*

MANAGERIAL "Formal committees, meetings and working parties"
1502 *Leaders need to have decisions made through formal meetings, committees and working parties*

INTERPERSONAL "Informal chats, personal consultation, lobbying"
1103 *Leaders need to have decisions made through informal chats, personal consultation and lobbying*

ADVERSARIAL "Public meetings, open debate"
0204 *Leaders need to have decisions made through public meetings and open debate*

EDUCATIVE "Collaboration, rituals and ceremonies"
2505 *Leaders need to have decisions made through collaboration*

Leadership Style Matrix Reference: RESPONSE TO OPPOSITION:

AUTHORITARIAN "Stifle"
0406 *Leaders need to control oppositional activities during decision making*

MANAGERIAL "Channel and delay"
2807 *Leaders need to ensure that oppositional activity during decision making goes through the proper channels*

INTERPERSONAL "Fragment and compromise"
2008 *Leaders need to negotiate compromises in private to accommodate oppositional activity during decision making*

ADVERSARIAL "Confront"
3309 *Leaders need to confront oppositional activity in open forums*

EDUCATIVE "Win/win negotiations"
1010 *Leaders need to negotiate for win/win outcomes when faced with opposition during decision making*

Leadership Style Matrix Reference:
STRATEGIES OF CONTROL

AUTHORITARIAN "Insulation, concealment and secrecy"
0611 *Leaders need to insulate and conceal issues and maintain confidentiality during decision making*

MANAGERIAL "Structuring, planning, control of agendas, time and context"
2212 *Leaders need to provide processes, plans and properly structured agendas for decision making*

INTERPERSONAL "Private performances of persuasion"
1713 *Leaders need to persuade individuals privately during decision making*

ADVERSARIAL "Public performances of persuasion"
3514 *Leaders need to persuade individuals publicly during decision making*

EDUCATIVE "Find common ground for motivation and commitment"
2715 *Leaders need to establish common ground with colleagues during decision making*

Building-Related Needs Matrix Reference:
SELF-ACTUALISATION

LOW TOLERANCE "Building's layout and 'performance' often causes frustration in own role enactment"
2116 *The functional design of my school inhibits my leadership performance*

HIGH TOLERANCE "Building's layout and 'performance' rarely affects own enactment of leadership role"
0117 *The practical layout of my school enhances my leadership performance*

Building-Related Needs Matrix Reference:
AUTONOMY

LOW TOLERANCE "Complete privacy of own office"
1218 *As a leader, my personal office should have a high degree of privacy*

HIGH TOLERANCE "Open access to own office"
1819 *As a leader, my personal office should have an 'open door' policy*

Building-Related Needs Matrix Reference:
ESTEEM

LOW TOLERANCE "Sameness in style: contextual, institutional"
0920 *The architectural image of a school should blend in with its context*

MID TOLERANCE "Hierarchical order: classical, post modern"
0521 *The architectural image of the school should reflect its symbolic importance to the community*

HIGH TOLERANCE "Freedom of expression: individual style, unique"
3222 *The architectural image of a school should express its unique nature*

Building-Related Needs Matrix Reference:
AFFILIATION

LOW TOLERANCE "Enclosed, private classrooms, offices"
1423 *I prefer classrooms to be enclosed and private*
0724 *I prefer staff offices to be enclosed and private*

HIGH TOLERANCE "Open classrooms, open offices"
2425 *I prefer classrooms to be 'open plan'*
2926 *I prefer staff offices to be 'open plan'*

Building-Related Needs Matrix Reference:

SECURITY
"Disorder in the environment"

LOW TOLERANCE "Can only cope with very tidy school"
1927 *I prefer my work environment to be tidy*

HIGH TOLERANCE "Can cope with visual disorder"
3128 *I accept a degree of visual disorder in my work environment*

SECURITY
"Noise in the environment"

LOW TOLERANCE "Can only cope with very quiet school"
2629 *I prefer my work environment to be quiet*

HIGH TOLERANCE "Can cope with unstructured noise"
1330 *I accept a degree of noise in my work environment*

SECURITY

"Complexity of school plan"

LOW TOLERANCE "Linear spatial organisation"

0831 *I prefer the spatial organisation of schools to be "a linear sequence of repetitive spaces"*

LOW-MID TOLERANCE "Radial spatial organisation"

1632 *I prefer the spatial organisation of schools to be "a series of linear sequences of repetitive spaces radially linked to a central point"*

MID TOLERANCE "Centralised spatial organisation"

2333 *I prefer the spatial organisation of schools to be "a central dominant space about which a number of secondary spaces are grouped"*

MID-HIGH TOLERANCE "Clustered spatial organisation"

3434 *I prefer the spatial organisation of schools to be "a cluster of spaces linked by proximity"*

HIGH TOLERANCE "Scattered spatial organisation"

0335 *I prefer the spatial organisation of schools to be "separate buildings that are scattered across the site"*