developed models of sub-system operation which generally follow the Parsons paradigm.

Mahoney (1967) has outlined three types of effectiveness criteria - unique operating measures, mid-range criteria and ultimate criteria (survival). Analysis of performance quality, for a truncated segment of an organisation's total life span, requires the use of those criteria providing the best possible prediction of ultimate success or failure. Mahoney (*ibid.*, p.77) has concluded that mid-range criteria (such as those propounded by systems theorists) have no proven predictive ability:

> There is little evidence to indicate that the suggested [mid-range] criteria are predictive of ultimate criteria or that they represent goals consciously sought by organisations. Rather, most of the suggested criteria represent goals which observers believe organisations should seek or variables hypothesised as predictive of ultimate survival criteria.

As the findings of systems theory have apparently not provided practising managers with more than generalised criteria of effectiveness with uncertain predictive capacity, researchers who require valid and reliable performance effectiveness criteria will no doubt prefer to look to more objective measures. Eventually it can be expected that useful measures of intermediate criteria will be developed.

In the small business venture, the aspirations of the entrepreneur are inevitably interwoven with the objectives for the firm itself. The entrepreneur, as has been indicated in preceding sections of this thesis, may enter business ownership for any or some of a variety of reasons, but it is clear from the research

literature that psychological aspirations feature significantly in entrepreneurial motives and behavior. Hence, one measure of the firm's effectiveness would relate to the extent to which it satisfies such needs for the entrepreneur. However from an essentially practical viewpoint it would be reasonable to propose that the primary objective for any business venture would be survival, since failure to survive results in consequential failure to satisfy other purposes or aspirations.

In one of only several available studies of small firm effectiveness, Friedlander and Pickle (1968) calculated correlation co-efficients to explore the relationships among a number of internal and external effectiveness criteria. Internal components included owner (financial profit) and employees (satisfaction with working conditions, financial rewards, opportunities for self-development; confidence in management; opinions about immediate supervisor). The societal components, for which goal fulfilment data were collected, included community, government, customers, suppliers and creditors. A feature of the computed co-efficients, noted by the authors, was that they were consistently of rather low magnitude. Of the five societal components, only customer and community satisfaction varied positively with the five aspects of employee satisfaction. With the association between owner satisfaction (profits) and employee fulfilment, three (out of five) significant relationships were produced - confidence in management .20, high opinions of supervisors .22 and employee self-development .23 (all with $p < .05$). Investigation of the association between owner satisfaction (profits) and societal components revealed only two relationships of significance. Owner satisfaction

correlated .32 ($p < .01$) with community fulfilment and .21 ($p < .05$) with customer satisfaction. Friedlander and Pickle (1968) have concluded that concurrent fulfilment of the needs of societal components, employees and owner are difficult to attain simultaneously. Their findings on employee fulfilment are supportive of the motivation-hygiene theory of Herzberg, Mausner and Synderman (1959) since the two hygiene features in that study (i.e. working conditions and financial rewards) exhibit insignificant correlation with organisational performance (here assuming a causal link between employee productivity and organisational performance).

What is evident from the Friedlander and Pickle (1968) study is that measures of financial earnings to the small firm owner are generally indicative of satisfied customers, community integration and most aspects of employee satisfaction.

A second study, by Pickle and Rungeling (1973), has produced correlation co-efficients between a range of owner/manager satisfactions (profit; financial satisfaction; security; psychic rewards) and customer satisfaction. The results are shown in Table 2.27. These data provide support for the Friedlander and Pickle (1968) findings, that the financial return to the owner/manager is a reasonable predictor of other effectiveness criteria.

On the basis of such evidence, sparse though it may be, and for administrative facility, the author has used criteria relating to owner satisfaction in this study. Given the validity

TABLE 2.27 *CO-EFFICIENTS OF CORRELATION OF COMPONENTS OF OWNER-MANAGER SATISFACTION AND CUSTOMER SATISFACTION IN 97 SMALL BUSINESS FIRMS*

Components of Owner/Manager Satisfaction	*Co-efficients of Correlation with:*			
	Customer Satisfaction	*Psychic Rewards*	*Security*	*Financial Satisfaction*
Profit	.76*	.31*	-.03	.80*
Financial Satisfaction	.41*	.28*	-.05	-
Security	.12	.08*	-	-
Psychic Rewards	.06	-	-	-
* *Significantly different from zero at the .01 level.*				

Source: *Pickle and Rungeling, 1973, p.270*

of the demonstrated relationship between the satisfaction of the ultimate survival objective and satisfaction of various mid-range criteria, a series of measures of business performance have been adopted to provide scores on the dependent variable of this research study. Further details of these measures are given in Section 5.45.

CHAPTER 3 A MODEL OF ENTREPRENEURIAL EFFECTIVENESS

There has been drawn from the diverse literature relating to kindred facets of human behavior, including the practice of business management, and associated fields of endeavour, a wide range of 'causal' factors, regarded as pertinent, in sundry ways, to the effectiveness of entrepreneurial behavior as manifested in the creation and successful operation of a small business venture. At this point in the thesis it is appropriate to demonstrate the broad hypothesized relationships among these various factors, and between them and the criterion variable of the study.

The proposed conceptual model introduces three types of variables which can be labelled as antecedent, intervening, and criterion. The latter, the dependent, effect or consequential variable in this study, is the disposition of the individual to act in a particular manner - in such a way as to establish a small business enterprise and operate it successfully. The proposed independent variables represent a configuration of properties which may be regarded cautiously as possible determinants of the individual's propensity and ability to behave in the manner mentioned. As stated in Chapter 1, this study has as its fundamental objective the development of the means of predicting entrepreneurial effectiveness in the small business situation (the disposition or act) from a knowledge of the possession of particular personal characteristics (the properties). While aware of the folly inherent in too readily assuming causal relationships among variables in ex-post-facto research, the

author is nevertheless hopeful of demonstrating relationships capable of being accepted as 'causal'.

The strength and plausibility of demonstrated relationships may be enhanced by the elimination of as many other feasible alternative 'causes' of the dependent variable as possible, given certain constraints on the nature and size of the study. This process, called "elaboration" by Rosenberg (1968, p.24), involves the introduction of possible explanatory variables or "test factors" (*ibid.*) into the analysis, stratification on those test factors and examination of the contingent associations. With the hope that significant relationships will become evident, relationships possibly deserving a degree of causal inference, the author, in designing this study, has recognised the "block-booked" (*ibid.*, p.26) characteristic of all sociological variables and has introduced a number of other feasible variables or test factors.

Two types of test factors have been used. Extraneous variables have been introduced to determine whether there is a truly intrinsic relationship between the predictor and dependent variables, or whether there is an accidental association with some related variable. Thus, the contribution of extraneous variables in non-experimental research is to guard against spurious and misleading interpretation of demonstrated associations. Another type of variable used as a test factor in this study is the intervening variable. The logical placement of such a variable in a research study is determined by the fact that it can be viewed both as a consequence of an antecedent

variable and as a determinant of the dependent variable. With extraneous variables, it is assumed that there is no causal connection or no inherent link, between the independent and dependent variables. Their association is assumed to be entirely due to their independent association with a third variable - they may both be consequences of a common determinant. However, an intervening variable serves both as dependent and independent variable in the one set of asymmetrical relationships.

In discussing the practical relevance of intervening variables, Rosenberg (1968, p.63) has advanced the view that

> any asymmetrical relationship between two variables is an abstraction from a never-ending causal chain. The greater one's understanding of the links in this chain, the better one's understanding of the relationship. The intervening variable is one of these links.

In like manner, antecedent variables may be introduced before an independent variable to provide a longer and more convincing causal sequence. This causal chain may be carried as far back as is theoretically meaningful and empirically practical, each additional step advancing understanding of the social process being studied. Even a multi-variate study, such as the present one, is "a truncated segment of an extended causal sequence, and any meaningful extension of that sequence can only enhance our understanding of the larger process" (*ibid.*, p.67). In building a conceptual model, not only must the researcher decide on which independent variables to use, but he also must offer reasonably plausible propositions about the inter-variable relationships. Particularly if he is interested in establishing a predictive model, he will be concerned with developing a convincing causal

sequence, and therefore will become involved in formulating an appropriate sequence of variables. He must make reasonable and justifiable placement of all types of variables in the model. Whether such placement is legitimate, or even appropriate, only statistical analysis and/or further research may determine.

Comprehensive study of the peculiar characteristics of small firms, *vis-à-vis* larger ones, of the problems of these small ventures, and of the role of the entrepreneur in 'small firm behavior', together with a realisation that models of business behavior, developed for, and applicable to large organisations, are inappropriate for the analysis of small firms, have persuaded the author that a viable model of small firm/ entrepreneurial behavior is both warranted and feasible. The model presented in this thesis, and which forms the foundation of this entire study, does not purport to be a total explanation of factors contributing to successful small business performance, but every effort has been made to include all plausible 'causes' or determinants. It could be argued that the placement of any of the variables is faulty, or that further factors (both antecedent and intervening variables) should have been included. Placement is justified by a study of the available research literature on each variable and the author's consequent judgment on the likely relationships. Any fault shown to exist in the placement of variables must rest entirely with the author's perception and judgment. Omission of any plausible factor is justified on the grounds of both time/effort constraints inherent in any research project, and on the author's judgment of the relative plausibility of alternative variables.

The criterion variable in this study is quality of performance as the owner/manager of a small business venture - the role of entrepreneur in the strictest sense. Entrepreneurial behavior may be manifest, and assessed for effectiveness, in several contexts, the one under consideration in this study being independent entrepreneurship i.e. the ownership and management of a small independent business venture. There are a variety of criteria of small business success or failure; however, a business that is incapable of remaining operational has failed, and other effectiveness criteria would seem redundant by comparison. The quality of performance within firms which have not failed may vary widely, so the author decided to use generally acceptable objective measures of business performance, to gain a wide range of performance scores. Further justification for the use of such measures is provided in Section 2.8, while evaluation of particular calculation methods follows in Section 5.45.

Discussion in Chapters 1 and 2 has suggested that a theoretical model of entrepreneurial effectiveness would include three broad groups of independent variables, *viz*:

1. relevant patterns of experience and preparation,
2. certain personality factors demonstrated to be pertinent to entrepreneurial behavior, and
3. other factors, including concurrent role obligations.

It is therefore postulated that the quality of an individual's performance as an independent entrepreneur in a small business enterprise is significantly associated with the possession or lack of a particular configuration of personal attributes.

Possession of an appropriate or relevant pattern of personal characteristics is suggested as being associated with a positive and propitious affective reaction to the many and diverse problems inherent in the entrepreneurial role. Conversely, the absence of such a favourable configuration, or the existence of an inappropriate set of attributes, is viewed as possibly detrimental to affective reaction and thus to entrepreneurial effectiveness and small business performance.

These three groups of independent or "causal" variables are composed of certain antecedent and intervening variables, and have suggested joint and several associations with the key theorem of the study.

3.1 EXPERIENCE, PREPARATION AND AFFECTIVE REACTION

It has been shown that the nature and demands of a person's work role have the capacity to induce stress when that person is unable, in some measure, to cope with those demands, and the consequences of such inability are perceived as threatening.

The entrepreneurial role requires knowledge of, and skill in, a wide range of management functions, failure in any one of which may have seriously adverse effects on the firm. There are certain features of the entrepreneurial role which cannot be learned or experienced without actual involvement in that role e.g. boundary spanning demands and role ambiguity. Facility in many other features of the role is attainable, prior to making the decision to enter business ownership, from experience and

formal education.

Pre-decision experience, capable of affecting entrepreneurial role performance, includes three components - occupational (trade or professional), managerial (supervisory) and entrepreneurial experience. For each type of experience two dimensions would seem appropriate - duration and relevance to the specific requirements of the present entrepreneurial role. Massive evidence, gathered in the United States particularly, over many years, and, more recently in numerous other countries, has indicated consistently and convincingly that many business founders are grossly unprepared for their chosen role, and, in consequence, fail within a short time.

Education is introduced as a potentially significant factor, since it has been shown to be associated with entrepreneurial performance (Section 2.72) and it is perceived both as a component of an individual's total experience, and as a probable influence on the nature and extent of other aspects of experience. There exists conflicting evidence of the contribution of formal education to entrepreneurial performance. Mayer and Goldstein (1961) and Hoad and Rosko (1964) have shown the duration of the educative process to be significant, while Collins and Moore (1970) have concluded that entrepreneurially inclined individuals distrust the structures and processes commonly associated with formal schooling to the point where they benefit little. It may well be that formal education sets in motion certain cognitive habits (e.g. logical reasoning) and develops certain attitudes resulting subsequently in open-

mindedness and, eventually, veridical self- and role-perceptions, which may influence affective reaction to stressful situations.

Age is significant to this study through its logical association with duration of experience, and the fact that the requisite physical, cognitive and emotive facilities and motivation vary with age.

Once the individual makes his definite decision to enter the role of entrepreneur in a particular type of business venture, the total pattern of experience, with age and education included, is seen as having a substantial influence on this motivation to succeed in that role. *Role success motivation* (Section 2.44) is also affected by one's general disposition to excel and succeed i.e. by his level of *achievement motivation*. Assuming appropriate experience, age and education, (and n-Achievement) the individual will be attracted to a role relevant to his background and propensities, and will manifest a strong desire to succeed in that role. Given that the person's choice of entrepreneurial role leads to his entry into small business ownership, the strong need to succeed will lead him to undertake appropriate *post-decision preparation*. This specific preparation supplements the previously, or concurrently attained more general experience, and bears directly on the individual's coping ability - his affective reaction to the stress of the role. Ill-prepared ventures, with inadequate finance, dubious location, untested market potential and incompetent management inputs will create further serious problems for the entrepreneur, at a time when he is already subject to stress.

This segment of the model is shown in Figure 3.1. Overlapping factors and relationships, not specifically included in this part of the model, are shown with broken lines.

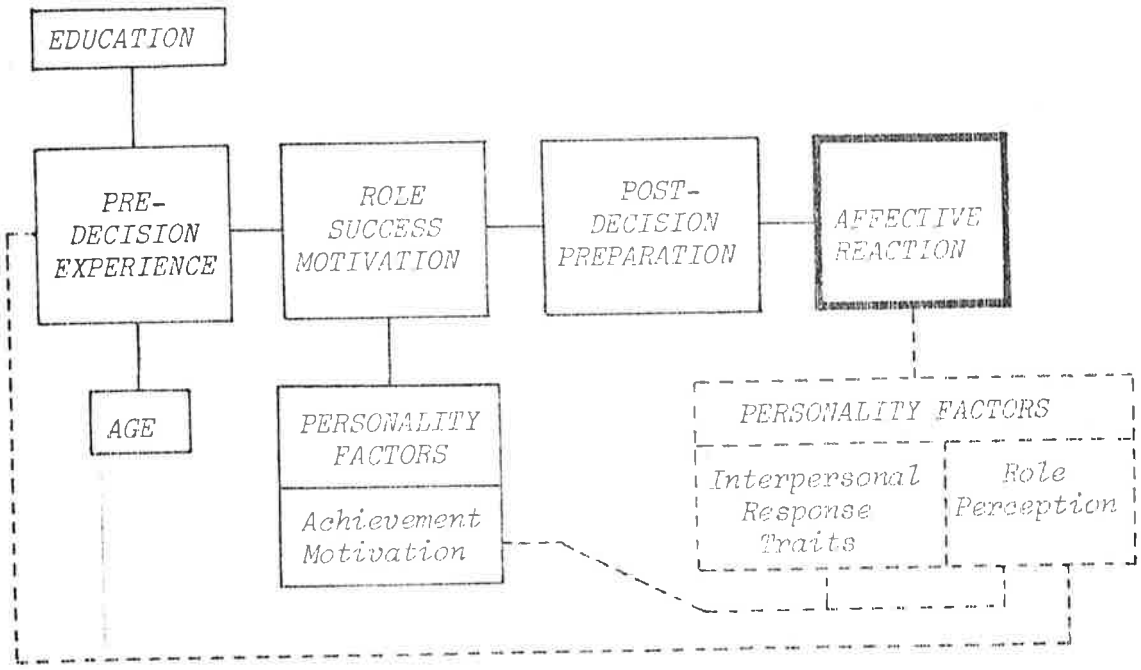

FIGURE 3.1 *EXPERIENTIAL AND PREPARATORY FACTORS IN A MODEL OF ENTREPRENEURIAL EFFECTIVENESS*

3.2 PERSONALITY CHARACTERISTICS AND AFFECTIVE REACTION

It is proposed that stress coping ability and inclination are influenced by certain personality traits. To keep this study within manageable bounds, only those facets of personality which have been demonstrated empirically to be associated with entrepreneurial behavior have been included in the model.

Achievement motivation, the general disposition to succeed, compete, innovate and overcome obstacles, is suggested as a

significant factor which has been shown convincingly in controlled experimental research to give certain individuals a natural advantage over others in contending with entrepreneurial role demands. Unfortunately, few research reports are available to validate such findings in the actual role of independent entrepreneur. The nature of high n-Achievement and entrepreneurial behavior is such as to give rise to many propositions which deserve research attention. Some of these hypotheses have been elaborated and examined in this study.

It is realised that strong achievement motivation need not propel an individual into the specific role of independent entrepreneur in a small business venture. Other factors, experience in particular, exert an influence on a person's decisions concerning his work role, help determine his specific motivation for and commitment to that role, and contribute thereby to affective reaction. Thus, in the model here proposed, achievement motivation relates to affective reaction *via* several intervening variables, including the individual's specific role success motivation (see Section 2.44) and other factors discussed below.

Two contributory factors relate to n-Achievement. It is difficult to suggest precise and measurable sources of this pervasive motivational factor, but apart from heredity, *family background* and broad *religious affiliation* (Section 2.413) are proposed as possible determinants of the level of this trait in an individual. Rather convincing empirical evidence points to child-rearing practices as significant, but the religious affiliation variable does not stem from any such clear cut research findings.

Role success motivation is perceived as a factor giving specific direction and impetus to the establishment and operation of a business venture of a particular kind. This factor is regarded as an intervening variable, being determined by several antecedent variables and, in turn, being a probable influence on affective reaction.

Achievement motivation is regarded as one source of influence on this specific motivation to succeed in the chosen role of entrepreneur. Experiential factors have also been shown as being associated with such motivation and role commitment (Section 2.44).

A third personality factor, proposed as being relevant to effective entrepreneurial behavior is *interpersonal response traits*. Defined as a general orientation towards others, resulting in the exercise of a predominant pattern of interpersonal responses, this construct is perceived as significant to the entrepreneurial role. It is recognised that interpersonal incongruence is a common source of stress (Section 2.451), and, for this reason, this factor is justified in a model used as the basis of an investigation of the relationship between stress coping capacity/disposition and entrepreneurial effectiveness. Research on n-Achievement has not been explicitly very concerned with interpersonal aspects of entrepreneurial activity. Apart from the demonstrated preference of high achievers for experts rather than friends as working partners (French, 1956), and the implicit conclusion that high n-Achievement is more associated with task-orientation than people-orientation, little else has

been proposed about this facet of behavior associated with high n-Achievement. It is here suggested that high n-Achievement in an individual is associated with a particular pattern of interpersonal responses.

The Horney (1945) model of interpersonal response traits has suggested a promising means for investigating entrepreneurial interpersonal orientation, since the aggressive and detached components of that model appear to have behavioral implications closely associated with those deriving from high achievement motivation. Sections 2.41 and 2.42 provide evidence of these behavioral associations.

The final personality factor included in the proposed model is *role perception*, which has been shown to be associated with both the direction of effort and successful task achievement (Section 2.43). The behavioral features of the inner-directed individual (from Riesman, 1950) show sufficient similarity to those implicit in high n-Achievement to suggest a positive and significant correlation. Role perception is influenced by many factors, including the experience pertinent to that role. It is generally postulated that the individual whose perception of his chosen role is either vague or erroneous will be more prone to suffer from the stress inherent in that role. His psychological preparation will be inadequate and/or imbalanced, leading to unrealistic expectations. Research has indicated that such a condition is generally associated with lack of perseverance through the difficult early stages of the new venture, and therefore with failure to survive this initial period.

These various aspects of personality, proposed as pertinent to affective reaction and, hence, to entrepreneurial effectiveness, relate to the total conceptual framework of the study as shown in Figure 3.2. Factors not specifically included in the *personality* segment of the model, but which overlap and interrelate are shown with broken lines.

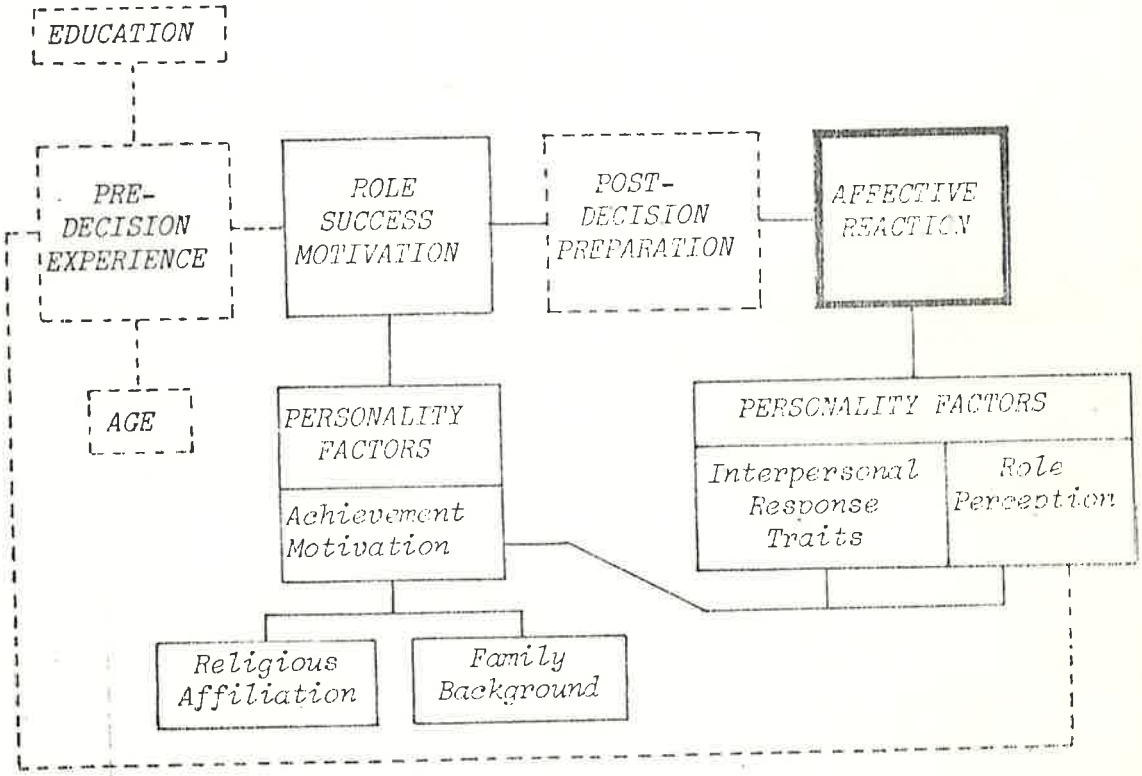

FIGURE 3.2 PERSONALITY FACTORS IN A MODEL OF ENTERPRENEURIAL EFFECTIVENESS

3.3 CONCURRENT ROLE OBLIGATIONS, OTHER FACTORS AND AFFECTIVE REACTION

It is recognised that an individual's performance in any one role is influenced by his obligations to, and performance in, his other concurrent roles. There are three roles, other than entrepreneurship,

which are suggested as potentially significant to the quality of performance in the latter role. Primarily, the entrepreneur's *marital status and family responsibilities* may contribute either propitiously or adversely to his business performance, and thereby, may be either a source of additional stress or a means of alleviating the effects of work-induced stress. Either way, performance in the parent/spouse roles and in the entrepreneurial role are associated, through the concept of affective reaction.

In like manner, *multiple job holding* may have either adverse consequences (by consuming scarce and critical time and energy) or beneficial results (by providing income). Similarly, *membership in other organisations*, such as clubs and associations, may have either favourable and unfavourable outcomes, depending on the extent of commitment. Demands made by any other role will vary in intensity, frequency and persistence, but, in some way, will affect the individual's ability and/or predisposition to perform effectively in his entrepreneurial role.

Two other factors are suggested as relevant. *Physical condition* is regarded as important to the performance of any task, and is therefore seen as particularly pertinent to the concept of affective reaction and its consequences. Finally, to investigate the relationship between *sex* and the quality of entrepreneurial performance, this variable has been introduced as a test factor.

The above mentioned concurrent role obligations and other factors have been introduced into the model on the assumption that they have direct relationship with affective reaction. This placement

is open to contention. Marital status and family responsibilities could feasibly affect role success motivation, and there are equally plausible grounds for placing other variables from this group in alternative direct relationships. With little guidance from the research literature, and with the need to keep the conceptual framework manageable, a measure of intuition and judgment was necessary. Hence, these factors were considered to most directly affect the entrepreneur's ability and desire to cope with the stress from his chosen task. Figure 3.3 illustrates the proposed relationships.

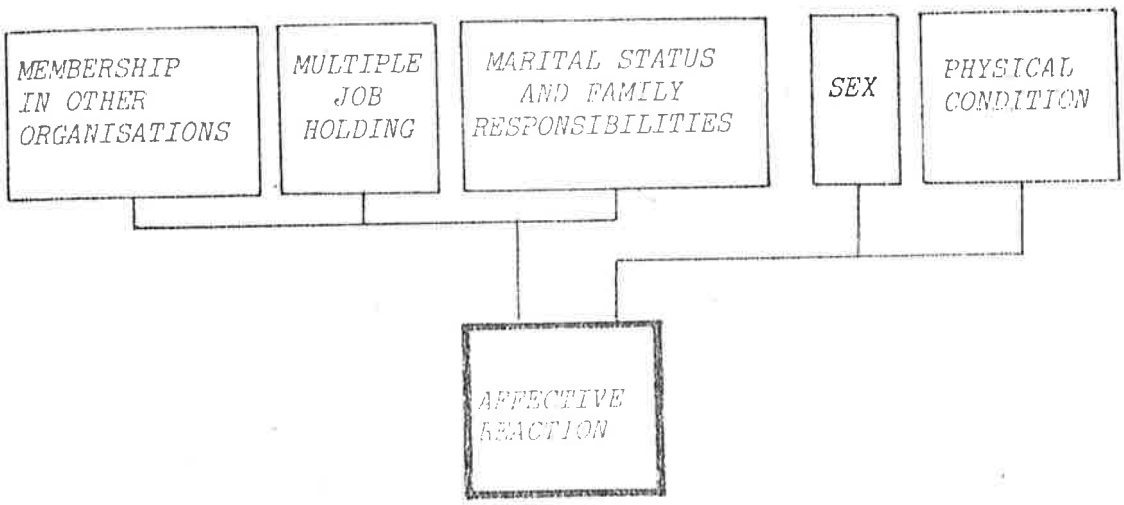

FIGURE 3.3 *CONCURRENT ROLE OBLIGATIONS AND OTHER FACTORS IN A MODEL OF ENTREPRENEURIAL EFFECTIVENESS*

3.4 AFFECTIVE REACTION, ENTREPRENEURIAL EFFECTIVENESS AND BUSINESS PERFORMANCE

The individual and grouped variables in the analysis are given purpose, and the various inter-relationships given substance by their convergence in the pivotal concept of *affective reaction*.

This factor has been proposed as the link between a wide range of potential determinants and the criterion variable. There is postulated a distinct and consistent relationship between the quality of entrepreneurial performance (in the small firm context), and the individual's mental/emotional capacity and propensity to cope with the stress, frustrations, disappointments, and physical and intellectual rigours of the role. Affective reaction, as a concept in a new context, is perceived as functioning in accordance with the previously discussed empirical conclusions on the effects of stress on individuals. Persons subjected to severe and/or prolonged stress have been shown to manifest symptoms of physical, cognitive and affective dysfunction. All three areas of human functioning are inter-related, disorientation or decremental adjustment in any one having a similar effect on the others. Whatever the origin or contributory factors, the result of stress on an entrepreneur, beyond his capacity to cope, is reduced effectiveness in that role. The impact of the performance of the owner is seen as critical to the survival of the enterprise, and performance is largely a consequence of a pattern of factors which converge into the capacity to cope with socio-psychological stress.

Entrepreneurial effectiveness is not a specifically measured variable in this model. It is introduced as a logical, and assumed conceptual progression from affective reaction to business performance.

Business performance, defined as the individual's ability to create and manage successfully a small independent business

venture, is here used as an index of that person's entrepreneurial effectiveness. The assertion of a theoretical model, incorporating factors proposed as relevant to the effective performance of the entrepreneurial role, must be soundly based on a thorough understanding of the nature and requirements of that role. It has been indicated that the role of independent entrepreneur is fundamentally different from any other business, economic or managerial role. The successful establishment and conduct of a small business enterprise requires both motivation and ability to do far more than is ordinarily required of the 'organisation man'. Entrepreneurship is a way of life rather than a mode of gainful occupation, and successful involvement therein demands not only the appropriate skills and knowledge but also the possession of a particular state of mind. Many factors have a bearing on this emotive condition, which is a consequence both of innate personality traits and patterns of life experiences. While various extrinsic factors may affect entrepreneurial performance, it is here proposed that a particular type of person is more consistently associated with successful entrepreneurship than is any extrinsic factor. The determination of the quality of entrepreneurial performance is inherently related to entrepreneurial aspirations, and these are frequently irrational from the traditional economic viewpoint. A range of psychological objectives are active in entrepreneurship, but none of these needs are capable of satisfaction unless the vehicle for their satisfaction can survive. Since it has been shown empirically that financial satisfaction for the entrepreneur is associated with the satisfaction of his psychological needs, and with the fulfilment of the needs of significant others (Section 2.8), the

author has used measures of earnings, growth and financial stability to produce entrepreneurial performance scores.

Thus, there is suggested a pattern of sequential relationships linking the mental/emotional state of the entrepreneur with his role effectiveness, and, consequently, with the quality of his entrepreneurial performance. These relationships, in schematic presentation, are:

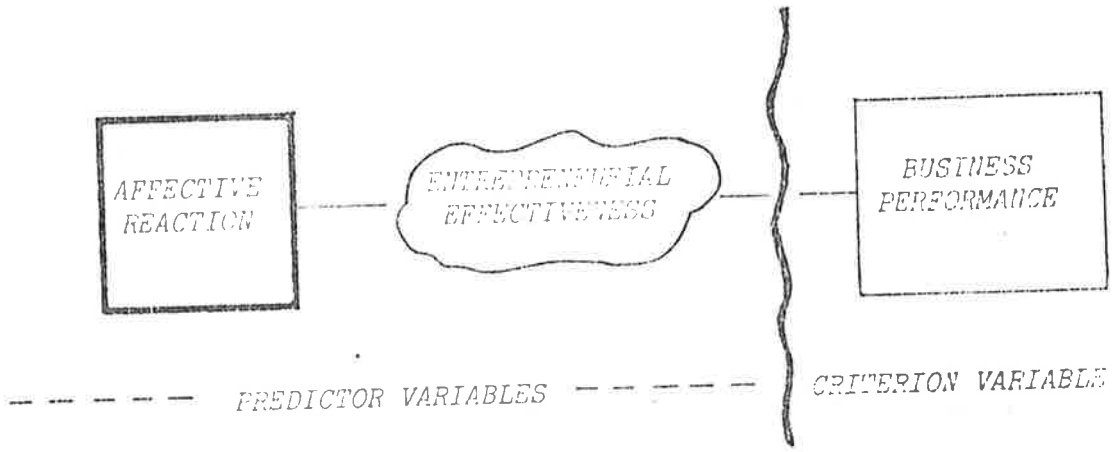

FIGURE 3.4 THE KEY VARIABLES IN A MODEL OF ENTREPRENEURIAL EFFECTIVENESS

3.5 A MODEL OF ENTREPRENEURIAL EFFECTIVENESS

The model of entrepreneurial effectiveness, the substance of this study, has been built from a group of segments each composed of postulated factors and their primary inter-relationships. The broad propositions and a number of suggested hypotheses, emanating from the model, required elaboration and testing. The following chapters indicate how this was undertaken.

The complete conceptual model is illustrated in Figure 3.5.

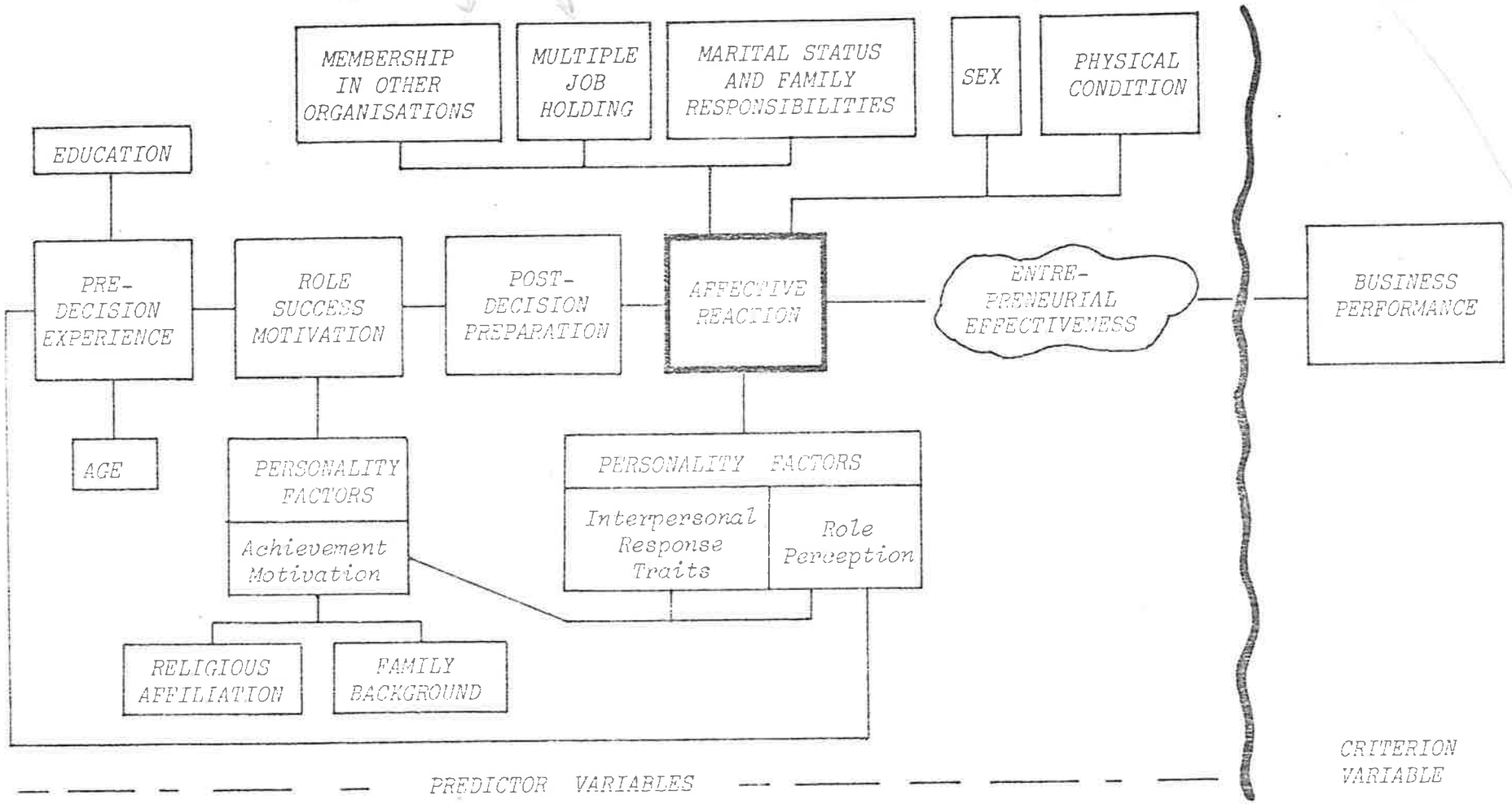

FIGURE 3.5 A MODEL OF ENTREPRENEURIAL EFFECTIVENESS

CHAPTER 4 RESEARCH PROPOSITIONS AND HYPOTHESES

In the first two chapters of this thesis, the attempt has been made to avoid speculation and to base all arguments on factual evidence or on the judgments of researchers and theorists who have some recognised claim to expertise. Chapter 3 presented the conceptual framework of this study, drawn from the research literature and justified therefrom, but also injecting an element of supposition.

In the present chapter, leading into the propositions and hypotheses which link the conceptual phase of this thesis with the empirical, a degree of speculation and personal intuition and judgment will necessarily be introduced. Scientifically based theories, propositions, and hypotheses about the world of reality array themselves along a dimension of abstraction or generality. In elaborating the empirical phase of a research study, the researcher must move prudently from one level of abstraction to another, to ensure that the thread of logical argument is not weakened.

The following presentation of propositions and hypotheses (the former being somewhat more obtuse and comprehensive than the latter concrete and empirically testable assertions) commences with the cardinal proposition underlying the whole purpose of this study - the postulation and substantiation of a predictive model of entrepreneurial effectiveness. There then follows a series of primary propositions and hypotheses pertinent to the major elements and inter-relationships in the proposed model.

Finally, a wide range of secondary hypotheses is introduced, incorporating all other variables and the more significant of their possible inter-relationships. In a model involving as many as 40 individual variables, the number of potential inter-relationships would be unmanageable. There exists much scope for future study.

4.1 FUNDAMENTAL PROPOSITION

As a foundation for the following exposition of the hypotheses which guide the empirical stage of this study, it is submitted that a model of small business/entrepreneurial behavior is both justifiable and viable.

Study of the wide but fragmentary research literature relating to the role of the independent entrepreneur in the small business situation, strongly suggests that the locus of concern, in endeavouring to ascertain true "causes" of small business success or failure, should be found in those factors which can be identified as bearing on the individual's ability and propensity to function effectively in a potentially highly stressful role. The explanation of why a particular firm fails will stem not so much from an examination of what the entrepreneur does, or how he does it, or what he neglects to do, but rather from the analysis of why he behaves as he does. Therefore, observation of the results of business management does little to develop a plausible insight to, or theory of, entrepreneurial effectiveness, with acceptable external validity. Faulty or

successful managerial/entrepreneurial practice is presented as justification for this study and for the explanatory model it offers and tests, in the nature of an intervening variable. The chain of causal inference has been traced back to identify root factors, which have then been proposed as relevant contributory variables.

The focal point and key variable in the theory of entrepreneurial effectiveness here postulated is the individual's ability and propensity to cope with the many and varied stressors inherent in that role. This factor, here labelled *affective reaction*, is proposed as a consequence of three interlocking sets of "independent" variables, all of which, in particular ways, contribute to, or detract from, the individual 's stress handling capacity and/or propensity.

If certain proposed factors are found to be consistently associated with affective reaction, and the latter with the quality of entrepreneurial performance, then knowledge of the possession or lack of these factors should permit the prediction of subsequent success or failure in the role of small business entrepreneur. If such associations are found to exist, and causal inferences are justified, an embryo theory of entrepreneurial effectivess may have been conceived. It is therefore proposed that:

The quality of entrepreneurial performance, in the small business context, can be confidently predicted from a knowledge of the particular personal characteristics postulated in this model.

4.2 PRIMARY PROPOSITIONS AND HYPOTHESES

This group of propositions and operational hypotheses relates to the major segments and inter-relationships of the total model - affective reaction and its association with the quality of entrepreneurial performance; and the relationships between affective reaction (as a dependent variable) and each of the three major clusters of postulated variables, *viz:* personality attributes, experience and preparation, and concurrent role obligations.

PROPOSITION A

The quality of an individual's entrepreneurial performance (in the small business context) is substantially a function of his mental/emotional capacity and propensity to cope with the many and varied demands and stresses of that role. Therefore:

Hypothesis 1

Affective reaction and the quality of performance as an independent entrepreneur in a small business are significantly and positively correlated.

PROPOSITION B

A significant influence on an entrepreneur's affective reaction, and, thereby, on his business performance, derives from particular aspects of his personality. Therefore:

Hypothesis 2

The higher an entrepreneur's level of achievement motivation, the more favourable will be his affective reaction to the stress inherent in his chosen role.

Hypothesis 3

Entrepreneurs with predominantly aggressive or detached interpersonal orientation will have a more favourable affective reaction to role stress than those with other predominant interpersonal response patterns. Therefore:

(a) *Aggressive interpersonal orientation and affective reaction are significantly and positively correlated.*

(b) *Compliant interpersonal orientation and affective reaction are significantly and negatively correlated.*

(c) *Detached interpersonal orientation and affective reaction are significantly and positively correlated.*

Hypothesis 4

The more appropriate an entrepreneur's role perception the more favourable will be his affective reaction to the demands and stresses of that role. Therefore:

(a) *An entrepreneur's predisposition for inner-directed behavior and his affective reaction are significantly and positively correlated.*

(b) *Other-directed behavioral inclination and affective reaction are significantly and negatively correlated.*

PROPOSITION C

An entrepreneur's pattern of work-related experience, together with his level of achievement motivation, influences the depth of his commitment to, and motivation for success in, that role. These factors, in turn, relate to the extent of his specific post-decision preparation, and, consequently, his affective reaction. Therefore:

Hypothesis 5

The longer and more relevant an entrepreneur's total pre-decision work-related experience, the higher will be his expressed role success motivation.

Hypothesis 6

Entrepreneurs with a high level of achievement motivation will express stronger role success motivation than those with lower n-Achievement.

Hypothesis 7

The strength of an entrepreneur's expressed role success motivation and the extent and relevance of his specific post-decision preparation are significantly and positively correlated.

Hypothesis 8

The longer and more relevant an individual's post-decision preparation, the more propitious will be his affective reaction to the stress inherent in the role of independent entrepreneur.

PROPOSITION D

A third group of factors which relate to an individual's ability and propensity for coping with entrepreneurial role stress include concurrent role obligations. The more demanding and stressful an individual's concurrent role obligations, the more unfavourable will be his affective reaction. Therefore:

Hypothesis 9

Entrepreneurs who are involved in club, association and community service activities are more likely than those not thus involved to have favourable affective reaction to the stress of the entrepreneurial role.

Hypothesis 10

The extent of an individual's other employment obligations and his affective reaction to the stress of his entrepreneurial role are significantly and negatively correlated.

Hypothesis 11

Entrepreneurs demonstrating auspicious affective reaction to the stresses of their role tend to be happily married with moderate domestic responsibilities and adequate family support and encouragement.

4.3 SECONDARY HYPOTHESES

In a study involving so many plausible variables the number and variety of possible combinations and inter-relations is very large. To keep this study within reasonable bounds not all possible inter-relationships can be investigated and discussed,

although every variable has been correlated with every other variable. In this section those more meaningful hypothesised relationships have been presented. Since all hypotheses involve at least two variables, classification of the following suppositions created problems. In most cases hypotheses are classified according to the "causal", independent or antecedent variable. Where this pattern has not been followed cross references are provided.

4.31 PERSONALITY CHARACTERISTICS

4.311 Achievement Motivation

Hypothesis 12

Protestant entrepreneurs tend to have higher achievement motivation than do entrepreneurs with other religious affiliations.

Hypothesis 13

Entrepreneurs with high achievement motivation are more likely to have experienced demanding but fair parental expectations and discipline, and satisfying, supportive home life than those with lower n-Achievement.

Hypothesis 14

Entrepreneurs with high achievement motivation are more likely to come from middle class (socio-economic status) families than those with lower n-Achievement.

Hypothesis 15

Entrepreneurs with high achievement motivation tend to come from families that are occupationally and geographically mobile.

Hypothesis 16

Entrepreneurs with high achievement motivation will be more likely to have undertaken significant and relevant post-decision preparation than those who have lower achievement motivation.

Hypothesis 17

Entrepreneurs with high achievement motivation will tend to have undertaken longer and more relevant formal education than those with lower n-Achievement.

Hypothesis 18

The higher an individual's level of n-Achievement the better the quality of his performance in the role of independent entrepreneur in a small firm.

Hypothesis 19

The level of an entrepreneur's achievement motivation and his compliant interpersonal orientation are significantly and negatively correlated.

Hypothesis 20

The level of an entrepreneur's achievement motivation and his aggressive interpersonal orientation are significantly and positively correlated.

Hypothesis 21

The level of an entrepreneur's achievement motivation and his detached interpersonal orientation are significantly and positively correlated.

Hypothesis 22

The level of an entrepreneur's achievement motivation and his predisposition for inner-directed behavior are significantly and positively correlated.

Hypothesis 23

The level of an entrepreneur's achievement motivation and his predisposition for other-directed behavior are significantly and negatively correlated.

4.312 *Interpersonal Response Traits*

Hypotheses 19, 20, 21 and 63 include interpersonal response traits as a variable.

4.313 *Role Perception (Inner-Other-Direction)*

Hypotheses 22, 23, 45, 57 and 63 include inner-directed and/or other-directed orientation as a variable.

4.314 Role Success Motivation

Hypotheses 24, 27, 31, 34, 38, 41, 47, 50 and 53 include role success motivation as a variable.

4.315 Affective Reaction

Hypotheses 25, 28, 32, 35, 39, 42, 48, 51, 54, 58, 60 and 62 include affective reaction as a variable.

4.32 PATTERNS OF EXPERIENCE AND PREPARATION

4.321 Occupational Experience

Hypothesis 24

The longer the duration of an entrepreneur's occupational experience the stronger will be his expressed role success motivation.

Hypothesis 25

The longer the duration of an entrepreneur's occupational experience the more propitious will be his affective reaction to the stress of his present role.

Hypothesis 26

The longer the duration of an entrepreneur's occupational experience the better the quality of his performance in his present role.

Hypothesis 27

The more relevant an entrepreneur's occupational experience to his present role the stronger will be his expressed role success motivation.

Hypothesis 28

The more relevant an entrepreneur's occupational experience to his present role the more propitious will be his affective reaction to the stress of that role.

Hypothesis 29

The more relevant an entrepreneur's occupational experience to his present role the better the quality of his performance in that role.

Hypothesis 30

Relevance of occupational experience is a more significant factor than the duration of that experience in the prediction of the quality of entrepreneurial performance.

4.322 Managerial Experience

Hypothesis 31

The longer the duration of an entrepreneur's managerial experience the stronger will be his expressed role success motivation.

Hypothesis 32

The longer the duration of an entrepreneur's managerial experience the more propitious will be his affective reaction to the stress of his present role.

Hypothesis 33

The longer the duration of an entrepreneur's managerial experience the better the quality of his performance in his present role.

Hypothesis 34

The more relevant an entrepreneur's managerial experience to his present role the stronger will be his expressed role success motivation.

Hypothesis 35

The more relevant an entrepreneur's managerial experience to his present role the more propitious will be his affective reaction to the stress of that role.

Hypothesis 36

The more relevant an entrepreneur's managerial experience to his present role the better the quality of his performance in that role.

Hypothesis 37

Relevance of managerial experience is a more significant factor than the duration of that experience in the prediction of the quality of entrepreneurial performance.

4.323 Entrepreneurial Experience

Hypothesis 38

The longer the duration of an entrepreneur's previous ownership experience the stronger will be his expressed role success motivation.

Hypothesis 39

The longer the duration of an entrepreneur's previous ownership experience the more propitious will be his affective reaction to the stress of his present role.

Hypothesis 40

The longer the duration of an entrepreneur's previous ownership experience the better the quality of his performance in his present role.

Hypothesis 41

The more relevant an entrepreneur's previous ownership experience to his present role the stronger will be his expressed role success motivation.

Hypothesis 42

The more relevant an entrepreneur's previous ownership experience to his present role the more propitious will be his affective reaction to the stress of that role.

Hypothesis 43

The more relevant an entrepreneur's previous ownership experience to his present role the better the quality of his performance in that role.

Hypothesis 44

Relevance of previous ownership experience is a more significant factor than the duration of that experience in the prediction of the quality of entrepreneurial performance.

4.324 Total Pre-Decision Experience

Hypothesis 45

The longer and more relevant an entrepreneur's total pre-decision experience the more appropriate will be his role perception.

Hypothesis 46

In an entrepreneur's total pre-decision work experience, previous ownership experience is a more significant factor than managerial experience, which in turn is more significant than occupational experience in the prediction of the quality of entrepreneurial performance.

4.325 Post-Decision Preparation

Hypothesis 16 includes post-decision preparation as a variable.

4.33 OTHER FACTORS

4.331 Age of Entry to Ownership

Hypothesis 47

Individuals who enter the entrepreneurial role between the ages of 30 and 39 years will have higher expressed role success motivation than those who do so at younger or older ages.

Hypothesis 48

Individuals who enter the entrepreneurial role between the ages of 30 and 39 years will have more favourable affective reaction to the stress of that role than those who do so at younger or older ages.

Hypothesis 49

Individuals who enter the entrepreneurial role between the ages of 30 and 39 years will perform better as entrepreneurs than those who do so at younger or older ages.

4.332 Education

Hypothesis 50

The longer the duration of an entrepreneur's formal education the stronger will be his expressed role success motivation.

Hypothesis 51

The longer the duration of an entrepreneur's formal education the more propitious will be his affective reaction to the stress of his present role.

Hypothesis 52

The longer the duration of an entrepreneur's formal education the better the quality of his performance in his present role.

Hypothesis 53

The more relevant an entrepreneur's formal education to his present role the stronger will be his expressed role success motivation.

Hypothesis 54

The more relevant an entrepreneur's formal education to his present role the more propitious will be his affective reaction to the stress of that role.

Hypothesis 55

The more relevant an entrepreneur's formal education to his present role the better the quality of his performance in that role.

Hypothesis 56

Relevance of formal education is a more significant factor than the duration of that education in the prediction of the quality of entrepreneurial performance.

Hypothesis 57

The longer and more relevant an entrepreneur's formal education the more realistic will be his role perception.

Hypothesis 17 includes total education as a variable.

4.333 Physical Condition

Hypothesis 58

Physical health and affective reaction to the stress of the entrepreneurial role are significantly and positively correlated.

Hypothesis 59

Physical health and the quality of entrepreneurial performance are significantly and positively correlated.

4.334 Sex

Hypothesis 60

Male entrepreneurs have a more favourable affective reaction to role stress than do female entrepreneurs.

Hypothesis 61

Male entrepreneurs tend to be more successful than females.

4.335 Religious Affiliation

Hypothesis 62

Protestant entrepreneurs have more favourable affective reaction to entrepreneurial role stress than Roman Catholic entrepreneurs.

Hypothesis 63

Protestant entrepreneurs are more likely to have aggressive/detached interpersonal orientation and inner-directedness than Roman Catholic entrepreneurs.

Hypothesis 64

Protestant entrepreneurs are generally more successful than Roman Catholic entrepreneurs.

Hypothesis 12 includes religious affiliation as a variable.

4.336 Family Background

Hypotheses 13, 14 and 15 include family background as a variable.

4.34 BUSINESS PERFORMANCE

Hypotheses 18, 26, 29, 30, 33, 36, 37, 40, 43, 44, 46, 49, 52, 56, 59, 61 and 64 include the quality of business performance (in the role of small business entrepreneur) as a variable.

CHAPTER 5 RESEARCH DESIGN AND METHODOLOGY

5.1 *INTRODUCTION*

The objectives and characteristics of this study presented certain methodological problems. The vast numbers of small firms in Western Australia (estimated at about 25,000), and their extensive geographical spread, even within the greater Perth area, together with the desirability of using as large a sample as possible, created difficulties in the collection of data. The technique indicated by these circumstances was a postal survey of a significant proportion of the total small business population. However, in addition to the magnitude of the task, there was need to consider the complexity inherent in a study aimed at identifying and analyzing psychological, sociological and experiential factors, particularly in subjects who tend to be reticent about scrutiny from outsiders or strangers. For these reasons, in-depth interviews were necessary, and to gain the extensive, yet personal and confidential data required, it was considered essential that the author conduct all interviews personally.

To facilitate the interviewing task a structured questionnaire was used, but subjects were also encouraged to discuss their problems, experiences and attitudes at will. This discussion was guided by a series of questions covering a wide range of matters relating to the entrepreneurial role and business operations. The total interview was tape-recorded with permission, and after assurances of confidentiality. Only seven

persons expressed the desire not to be recorded. Much valuable information was gathered from the guided discussions and a far deeper insight into the nature of entrepreneurship was achieved. Such data and insight have been incorporated into this thesis, and will also form the basis for future study.

In seeking to explain phenomena that have already occurred, the researcher is faced with the frustrating fact that he does not have real control over the possible causes of those phenomena. Thus, the ex-post-facto researcher must take things as he finds them and then try to discern meaningful relationships among them. Unlike experimental research, where subjects can be assigned to groups at random and then 'manipulated', in the ex-post-facto situation randomization is impossible. Subjects have already assigned themselves to groups or categories based on the possession of varying degrees or quantitites of the variable being studied (the dependent variable). The prime difficulty is that group or category members are in those groups or categories because they frequently possess traits extraneous to the trait being studied. It is therefore possible that another variable, correlated with the dependent variable, is the true basis of the relation. Such variables or traits may influence the variable under study, and hence, ideally, should be controlled to eliminate their effects. Controlling in ex-post-facto research involves testing a series of alternative hypotheses, and, consequently, the research design becomes multivariate.

The inherent characteristics of this research study have

influenced both the basic design and the empirical procedures employed.

5.2 THE SAMPLE

The sample consisted of 250 owner/managers or ex-owner/managers of small firms, all located within the Perth metropolitan and suburban area. To obtain a sample as widely representative of business performance as possible, a number of owner/managers of failed firms were included. In this way, the personal characteristics of very successful, marginal and failed entrepreneurs could be compared and analyzed. The appropriate percentage of such failed firms was impossible to calculate or estimate with any accuracy, so 75 failures (30% of the total sample) were included.

All subjects were required to conform to the definition of small business as outlined in Section 1.3 above. Thus, the firms were expected to comply with the definitions accepted by both the Bolton and Wiltshire Committees, regarding independence, relative smallness, lack of specialist management and the owner(s) personally directing the total venture. Within these guidelines, specific quantitative criteria were imposed, *viz*:

Number of Employees ..... not above 50

Sales Income (per annum) ..... limit of $1,000,000
(for most recent financial year)

To be able to work with a sample as representative of the total small business population of Western Australia as possible, stratified sampling was used. It was thought feasible that the

possession of patterns of personal characteristics regarded as conducive to successful entrepreneurship could vary as between different forms of entrepreneurial development and behavior, and therefore as between different types of business ventures. Random samples were selected from each of four strata. According to data derived from the author's postal survey of 2000 business enterprises in Western Australia (see Appendix D) there were unlikely to be any small firms (as defined above, for sample selection) in either mining or electricity/gas activities. Of the 2000 randomly selected firms, 1908 reported having 50 or fewer full-time-equivalent employees. The distribution of these small firms according to industrial grouping is shown in Table 5.1

TABLE 5.1 *SMALL BUSINESS* IN WESTERN AUSTRALIAN BY INDUSTRIAL GROUPING: 1973 POSTAL SURVEY*

Industry	*Frequency*	*Percentage*
Mining	-	-
Manufacturing	*201*	*10.5*
Electricity/Gas	-	-
Retail	*824*	*43.2*
Wholesale	*246*	*12.9*
Services	*637*	*33.4*
Totals	*1908*	*100.0%*

** Employing 50 or less persons*

Applying these percentages to the required numbers of operating and failed firms for the sample, resulted in a stratified random sample as follows:

TABLE 5.2 STRATIFIED RANDOM SAMPLE CATEGORIES

Industry	*Operating*	*Failed*	*Totals*
Manufacturing	*18*	*8*	*26*
Retail	*76*	*32*	*108*
Wholesale	*22*	*10*	*32*
Services	*59*	*25*	*84*
	175	*75*	*250*
Percentages	*70%*	*30%*	*100%*

5.21 SAMPLE SELECTION FOR OPERATING FIRMS

For each stratum, random selection procedures were adopted. From the Perth Telephone Directory 'Pink Pages' (classified business directory) for 1972-73, the alphabetical index of types of business, product and services was classified into the four selected industrial groupings. All entries, other than public companies (by definition, not included in the sample) thus listed under each trade, product and service within the Manufacturing category were then numbered from 1 to 3169. Selection by the use of a table of random numbers was then carried out (without replacement) to gain the requisite number of small manufacturing enterprises. Investigation of the selected firms showed up a small number which did not fit the criteria for 'small business' and these were deleted. Selection proceeded until 18 acceptable firms were listed. The same procedure was adopted for the three other industrial groupings. The sample was selected in November 1972 and interviewing commenced in the same month.

5.22 SAMPLE SELECTION FOR FAILED FIRMS

In September 1973, an approach was made to the Official Receiver and Registrar in the Office of Bankruptcy Administration within the Attorney General's Department in Perth, and permission was received to use available copies of Reports of the Official Receiver Pursuant to Section 19 of the Bankruptcy Act (Commonwealth of Australia 1966-70), which involved small firms. The documents provided confidential information relevant to small business failures within the two preceding years, including such matters as the extent of the deficiency, a history of the firm in question and reported 'reasons' for the failure. From the data provided, 75 failures were selected, in accordance with the stratification criteria listed above.

5.3 DATA COLLECTION

A letter of introduction was mailed to each of about 20 of the selected firms. The purpose of the letter was to indicate the purpose of and need for the study, and to seek the co-operation of the proprietor, partner(s) or director(s), with an assurance of complete confidentiality. The text of the letters mailed to operating firms differed somewhat from that of the letters sent to the owners of failed firms, but the purpose and general substance were the same. The letter stated that the researcher would follow up with a telephone enquiry, within about ten days, to determine the willingness or otherwise of the individual to be interviewed. The telephone follow up showed that a number of firms did not fit the requirements for inclusion in the sample,

and these were deleted at this point. Further firms were randomly selected, as outlined above. Some reticence to the proposition was evident in about 25% of the individuals spoken to, but verbal and more detailed explanation of issues of concern satisfied all but eleven persons (4.4%) out of the full 250 in the sample. The question of confidentiality of data was of most concern to the majority of those who expressed any reluctance to become involved.

Where co-operation was forthcoming, a mutually agreeable time and place was arranged. Of the 175 operating entrepreneurs in the sample, 123 (70.3%) preferred to be interviewed during business hours, the balance requesting evening interviews at their homes. There were benefits deriving from both arrangements since work day pressure and operating techniques were observable in 123 cases, and expressions of feelings from family were encouraged in the home interviews. In some 75% of the home interviews, wives and children wished to be involved in the discussion. When the initial batch of 20 interviews were nearing completion, a further 20 letters of introduction were mailed and the procedure repeated until all 175 operating, and 75 failed, entrepreneurs were interviewed.

The completion of each questionnaire required about 75 minutes, but the average length of the total interview was approximately two hours for those conducted at work, and a little over three hours for those at home. Travelling time added an average of one hour to each interview. Total estimated time for the complete interviewing programme was approximately 800 hours. An

estimated 4000 miles of driving were required.

At each interview, a short orientation period was used to allow both the subject and the interviewer to 'settle in'. Even at this late point, the subject was given the opportunity to opt out of the interview. It was found that the quickest and most accurate method of completing the questionnaire was to have the interviewer verbally question the subject on all sections except G, O and P (Personality Factors), and check the appropriate boxes. The subject was handed a blank questionnaire to follow, and the verbalizing of the questions to suit the background and interests of the individual proved most satisfactory. Sections G, O and P were answered completely by the subject after verbal explanations of procedure from the author. Data for the completion of Section Q (Business Performance) frequently required modification before they could be recorded as needed for standardized analysis and scoring. In many cases financial reports represented data for taxation purposes, and questioning revealed that figures were known not to portray the true situation. Some estimates were necessary in a minority of cases, but the scaling procedures used were flexible enough to result in reliable scores despite the variation in accounting data.

5.4 *OPERATIONAL DEFINITIONS AND MEASURING INSTRUMENTS*

Empirical research is concerned with the derivation of knowledge, and, hopefully, tenable theory, by the process of scientific observation of phenomena. Factors to be investigated, the variables in the study, are frequently complex phenomena which

tend both to be difficult to observe and to have abstract or conceptual definition. When the researcher requires data about the study variables, he needs to use measuring instruments which will produce a range of values for each variable. Such data should be acceptable as a valid indicator or measure of the concepts under investigation.

What the researcher requires, is "a definition that assigns meaning to a construct or a variable by specifying the activities or 'operations' necessary to measure the construct or variable" (Kerlinger, 1967, p.34). Whether a particular measuring instrument is a reliable and valid tool, depends largely on how well the phenomena being measured have been operationally defined, and can be assessed by statistical analysis. The development and/or selection of reliable and valid measurement instruments is a vital part of the total research process. Operational definitions enable the researcher to measure variables with acceptable degrees of reliability and validity, and they are indispensable bridges between the theory/hypothesis/construct and observational/measurement phases of the research. Despite the necessity for operational definitions, they cannot fully express the complexity, richness and diversity of meaning of many social science concepts. Northrop (1947, p.130) has stated that "the importance of operational definitions is that they make verification possible and enrich meaning. They do not, however, exhaust scientific meaning".

5.41 PERSONALITY CHARACTERISTICS

There follows discussion on operating definitions and rationale for the use of the various measuring instruments used with the personality factors in this study.

5.411 Achievement Motivation

Individuals with high levels of n-Achievement will fairly consistently express preference for achievement oriented behavior, and hold achievement oriented attitudes, rather than manifest attributes associated with need for power (n-Power) or need for affiliation (n-Affiliation)*. It has been proposed that n-Achievement has behavioral manifestations different from both n-Power and n-Affiliation, in terms of the person's relationships with others. The latter two are interpersonally oriented needs, implicit in their definitions being the existence of other persons, and the needs for influence, control over or friendship with others. The nature of the relationship of the high n-Achievement person with others, and his effectiveness with them, are determined by a motivation that is essentially non-interpersonal. Such a person needs others, but this need is directed toward

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*From Atkinson (1958, p.105), n-Power is "that disposition, directing behavior toward satisfactions contingent upon the control of the means of influencing another person".

n-Affiliation is concerned with the "establishment, maintenance, or restoration of positive affective relationships with other people, that is, friendships. Statements of liking or desire to be liked, accepted, or forgiven are manifestations of this motive" (Wainer and Rubin, 1971, p.132).

satisfaction of the need to achieve. His level of n-Achievement can be measured by his responses to projective instruments (as used by McClelland, Atkinson and others), and by attitudinal reactions to achievement- and non-achievement-oriented situations. The measuring instrument used in this study to assess achievement motivation, presents a series of such situations, and provides for a range of responses.

As outlined in Section 2.412, McClelland, Atkinson and their research associates have consistently employed the Thematic Apperception Test (TAT) instrument to obtain measures of n-Achievement. After consideration of the methodological and administrative problems associated with using the TAT instrument to a sample of 250 busy entrepreneurs, many of whom would experience some difficulty with written expression, it was decided to develop a Likert-type scale which would combine adequate reliability and validity with administrative facility. From the literature on the subject, there were culled many statements describing n-Achievement behavior and attitudes. These statements were transformed into questions phrased in such a manner as to be appropriate to the Likert-type scale. The 28 questions so produced were subjected to rigorous evaluation procedures to assess item discrimination, reliability and validity.

The 28 item questionnaire was administered to 36 small business owner/managers who were also students in the School of Business and Administration at the Western Australian Institute of Technology. Several indices of item discrimination were calculated to determine the extent of the relationship between

each item and a criterion, and on the basis of the results obtained, 13 items were discarded and the remainder subsequently tested for reliability and validity. Details of procedures and results of the Findley Index (Findley, 1956), the Guilford Phi value method (Guilford, 1941) and the Selltiz *et al* method (Selltiz *et al*, 1965, p.185) are presented in Appendix A.

The 15 item questionnaire was administered to a group of 20 (of the original 36 item discrimination test group) one month after the first occasion. Test-retest scores were used to calculate the co-efficient of stability, 0.9360, which is significant at $p < .001$ (two-tailed test). As a second measure, the scores of the first administration to the 20 subjects who later participated in the retest, were analysed to produce a split-half co-efficient of reliability. For this purpose Item 15 was deleted to provide equal numbers of odd and even item scores. The co-efficient of internal consistency on this instrument was found to be 0.8771 (after test length correction) which is significant at $p < .001$ (two-tailed test). A final assessment of item homogeneity was undertaken with the Kuder-Richardson 20 (Hoyt variation) co-efficient of reliability. The co-efficient obtained (0.7334 - see Appendix A) indicated that the 15 items consistently measure the same trait. Based on analysis of variance, the co-efficient shows that the individual items produce similar patterns of response from the subjects - the items have acceptable homogeneity.

The 15 item Likert-type scale designed to measure achievement motivation for this study is a reliable instrument, according

to the tests undertaken. Full details of all calculations of both item discrimination and test reliability are provided in Appendix A.

The final matter of concern in the construction of the n-Achievement measuring instrument was its validity. The validity of a test relates to the extent to which it measures what it is intended to measure, and is indicated by the correlation between the test and some criterion. The item discrimination indices referred to above (details of which appear in Appendix A) can be regarded as concurrent validity co-efficients. The predictive validity of the instrument under discussion can only be assessed by reference to some future criterion measure. Future performance as an entrepreneur could well be such a criterion. The primary task at this point was to determine the degree to which individual respondents possess the trait presumed to be indicated in the test performance. In other words - is the instrument a valid measure of n-Achievement? The investigation involved correlating the test scores with those on other tests which are known to measure n-Achievement reliably. The resulting co-efficient would indicate the instrument's construct validity. For this purpose, the standard six picture TAT used by McClelland, Atkinson and others, was used as the criterion measure being administered to the 20 small business owners previously used. Three scorers were employed to permit assessment of inter-scorer reliability in this particular case. The scorers were all experienced lecturers in psychology and/or sociology, and the results achieved (reported in Appendix A) produced significant correlation co-efficients, from ranked data. The central or most

common of the three scores for each respondent was then used for correlation with the scores for the 15 item scale, a co-efficient of 0.7990 being achieved (Pearson product-moment; significant at $p < .001$ on a two-tailed t test).

The author's Likert-type scale to measure n-Achievement for this study is a valid instrument for its intended purpose. Full details of all validity calculations are included in Appendix A.

One of the significant characteristics of persons with high levels of achievement motivation is a preference for moderate risk and situations in which outcomes depend substantially on personal ability. Attitude toward risk taking in business situations (where entrepreneurial skill is relevant) can be gauged by the use of a recent technique supported by Swalm (1966) and used empirically by Grayson (1960) and Green (1963). Subjects are faced with hypothetical risk situations, with varied utilities and consequences. From responses given to each situation, the individual's utility function (risk taking profile) can be plotted, to show whether he is predominantly risk-prone, risk-averse or somewhere between. This method was adopted in very simple form to assess entrepreneurial attitude to risk in this study. Three hypothetical business situations were presented in the questionnaire, each with an investment opportunity and clearly differentiated consequences. The first situation presented a 50/50 chance of making $10,000 profit on a business deal or of losing the invested funds. Subjects were asked to indicate the extent to which they were willing to invest under such conditions. The second and third cases were identical to the first except

that the respective 'odds' were changed to 4:1 for and 1:4 against making the stated profit. For each situation, a range of investment figures was provided, and subjects were required to indicate their willingness to risk funds. Scores for this section of the questionnaire were incorporated into the total score on achievement motivation.

The achievement motivation scale, Part G of the questionnaire is shown in Appendix C. Scoring procedures are outlined in Section 5.5.

5.412 *Interpersonal Response Traits*

It has been indicated that the individual with entrepreneurial inclinations tends to develop a particular perception of his social environment, and hence manifest characteristic action tendencies towards others in his role set. Horney's (1945) analysis of the problem of insecurity neurosis, and her resulting three-fold classification of interpersonal response strategies, have provided a model with wider applicability than was originally anticipated in the field of clinical psychiatry. The model has provided rationale for grouping manifold traits into meaningful categories, capable of delineating a person's relatively consistent manner of relating to, and coping with, others.

Particular patterns of interpersonal responses have been attributed to the individual with high n-Achievement (implying thereby the possession of entrepreneurial inclinations), and the author wished to elaborate this suggested association. To

test the relevant hypotheses and depict the suggested relationships, an instrument, capable of measuring the prevalent patterns of interpersonal orientation, required location or construction.

A Likert-type instrument was designed by Cohen (1967) to measure compliant, aggressive and detached interpersonal orientations, and was reported as having adequate test-retest reliability and split-halves internal consistency. As no reliability co-efficients were offered by Cohen, the author decided to assess the instrument's reliability in the Australian context. The 35 item Cohen scale (with several small changes in terminology) was administered to the same 36 persons who were used for the item discrimination assessment of the author's n-Achievement scale. Two indices of item discrimination were calculated, and, on the results attained, five items in the Aggressive Orientation sub-scale were deleted, four because of unacceptable discriminatory power, the other doubtful item to create equal-sized Compliant, Aggressive and Detached sub-scales. Appendix B gives full details of these item discrimination data.

The 30 item scale was then tested for reliability with the same group as was used for assessing the reliability of the n-Achievement scale. Test-retest scores (with one month time span) produced co-efficients of stability for the Complaint, Aggressive and Detached sub-scales of 0.9400, 0.8797 and 0.5466 respectively. The first two co-efficients proved statistically significant at the .001 level (using a t statistic with 18 degrees of freedom and a two-tailed test), and the latter co-efficient was

significant at the .02 level. The scores of the first administration of the test-retest reliability assessment were analysed to give a split-half co-efficient of reliability for each sub-scale. The three co-efficients so produced, 0.9831, 0.9450 and 0.8657, all proved statistically significant at $p < .001$. Raw data for these tests are given in Appendix B. The reliability of the 30 item CAD scale used for this study is accepted.

To determine the validity of the original 35 item instrument Cohen first assessed its *content validity*

> ... to ensure that CAD [the Compliant - Aggressive - Detached orientation scale] adequately represented the theory on which it was based and would thus be definitive in testing hypotheses based on that theory. (Cohen, 1967, p.271)

Cohen reported high interjudge agreement among qualified experts who were familiar with Horney's typology, indicating "that each of the items did measure the desired trait" (*ibid.*). All seven judges agreed on the compliant designation of nine of the ten Compliant items; 13 of the 15 Aggressive items were accepted by all judges as being correctly designated; and of the ten Detached items, perfect interjudge agreement on designation was achieved for seven. On all six items where perfect interjudge agreement was not achieved, six of the seven judges gave responses appropriate to the item designation. The instrument's content validity has been accepted.

The *construct validity* of the scale was established by comparison with other psychological tests that have been shown to measure

the same traits. Cohen used the *FIRO-B (Fundamental Interpersonal Relations Orientation - Behavior, 2nd Edition)* instrument, developed by Schutz (1958), as the criterion measure. This instrument, constructed to measure three interpersonal needs (inclusion, control and affection, each dichotomized into wanted and expressed behavior), has received widespread use and has proven reliability and validity, particularly in studies of group interaction situations. Cohen (1967, p.271) reported that "consistent predicted similarities were found between CAD and FIRO-B when the scores of 50 students on both measures were correlated".

To test *concurrent validity* the CAD scale was correlated with two different measures of occupational preference devised by Rosenberg (1957) and based on Horney's (1945) classification of interpersonal response modes. The first study used a preference report technique for which three scales of occupations were validated by high interjudge correlation. The three occupational scales were based on Rosenberg's lists of compliant, aggressive and detached occupational values and choices. Subjects were asked to assume no salary or prestige differentials between the various occupations, and that each required skills which they (the subjects) possessed. Table 5.3 shows the inter-correlations resulting from the study.

TABLE 5.3 *CORRELATIONS OF CAD SCALES WITH OCCUPATIONAL SCALES*

CAD Scales	Occupational Scales		
	Compliant	Aggressive	Detached
Compliant	.48[b]	.10	.21
Aggressive	- .20	.24[a]	- .29[b]
Detached	- .28[a]	- .40[b]	.34[b]

N = 78
a = significant at .05 level
b = significant at .01 level

Source: *Cohen, 1967, p.272*

A further concurrent validation study by Cohen involved Rosenberg's (1957) evidence that occupational preference, choice and preparation are influenced by one's CAD orientation: *viz.* occupational choice of social work implies compliant values; business administration, aggressive values; and natural science (geology), detached values. Testing the hypothesis that persons having chosen one of the stated occupations would score higher on the appropriate CAD sub-scale, the proposition was accepted, on the basis of the data presented here in Table 5.4, being confirmed with *t* tests.

TABLE 5.4 *CAD SCORES FOR THREE FIELDS OF STUDY*

CAD Scale	Social Welfare	Business Administration	Geology
Compliant	39.41	35.70	36.67
Aggressive	41.88	50.87	44.96
Detached	23.88	25.03	28.60
N	32	30	25

All hypotheses were accepted at the .01 level or better.

Source: *adapted from Cohen, 1967, p.272*

On the basis of the above validation verification, Cohen (1967) used the CAD scale to test the proposition that general interpersonal dispositions would be reflected in consumer market behavior. His detailed findings are not the concern of this study but his conclusions reported that "the Horney classification of interpersonal response traits seems to bring a high degree of integration to bear on otherwise diverse individual needs, values, and attitudes" (*ibid.*, p.276).

On the basis of the foregoing evidence the Cohen CAD scale has both the reliability and validity necessary to be used in this study. The deletion of five items from the original Aggressive sub-scale has had no effect on the scale's reliability, and it is assumed that the same applies to its validity.

In this study the 30 items were listed in random order. Following the presentation of each item situation, the author used the six-response Likert-type scale, since Cohen (1967) had reported that his subjects were more comfortable with a wider range of responses, and this resulted in a corresponding increase in the reliability of their scores. Thus the format was:

	EXTREMELY UNDESIRABLE					EXTREMELY DESIRABLE
1. Being free of emotional ties with others is ...						

Responses were scored from 1 to 6 according to whether an "extremely undesirable" or an "extremely desirable" response represented a high or low Compliant, Aggressive or Detached

orientation. For each of the three sub-scales the scores for each of the ten items were summed to give the total Compliant, Aggressive and Detached scores. The range of scores for each sub-scale was 10 - 60. The designation of each item can be ascertained from Appendix B and Section 5.5.

The interpersonal response orientation (CAD) scale, Part 0 of the questionnaire, is shown in Appendix C. Scoring procedures are outlined in Section 5.5.

5.413 *Role Perception*

The "inner-other-directed" dimension of role perception, first postulated by Riesman (1950) has been used in this study.

Porter (1964) and Porter and Lawler (1968) developed and used a questionnaire to measure role perception of managers, based on the "inner-other-directed" dimension. Porter and Lawler (1968), in their more ambitious study of managerial attitudes and work performance, replicated the Porter (1964), role perception instrument, justifying its use with the statement that the method had "empirical as well as theoretical validity" (Porter and Lawler, 1968, p.105).

Porter (1964) had developed from the literature two polar groups of traits, *viz:*

INNER-DIRECTED TRAITS	*OTHER-DIRECTED TRAITS*
1. *Forcefulness*	1. *Co-operation*
2. *Imagination*	2. *Adaptability*
3. *Independence*	3. *Caution*
4. *Self-confidence*	4. *Agreeability*
5. *Decisiveness*	5. *Tactfulness*

and found a tendency for the traits within each group to move together when compared over different management levels. Porter and Lawler (1968) added a dummy trait to each group, to disguise the dimension being investigated. Respondents were asked to rank the twelve randomly arranged traits in order of importance for their roles, and when the data were analysed the two camouflage items - intelligence and efficiency - were dropped, the remaining traits being re-ranked from 1 to 10, with appropriate elevation in rank to replace the two deletions. Cluster group scores were computed by summing ranks.

The Porter (1964) and Porter and Lawler (1968) studies involved managers in larger organisations, many having college education. It was thought possible that many of the subjects used in this study would not have attained a high level of schooling (subsequent data analysis has confirmed this expectation), so the method of responding to this scale was simplified. It was also hoped that the modified response procedures would produce more realistic responses. The simplified version of the scale was checked for ease of comprehension and simplicity of instruction among 16 undergraduate students, 10 high school students (averaging 14 years of age), 7 housewives and 7 tradesmen employees,

all chosen at random from accessible people. No indication of any serious difficulty was evident, and after several minor changes to the instructions, the revised format was deemed satisfactory.

Instead of being asked to rank all twelve traits, subjects were required to first decide (and indicate by checking/ticking) whether each trait is "most important", "moderately important" or "less important" for success as a small business owner/manager. Then the traits selected for each of these three categories were ranked within each category.

The role perception scale, Part 0 of the questionnaire, is shown in Appendix C. Scoring procedures are outlined in Section 5.5.

5.414 *Role Success Motivation*

Empirically based measures of role commitment, valence, and subjective probability of outcome are few, and those existing have limited applicability.

To be able to confidently conclude that one outcome is positively valent and another negatively valent, or that one is more positively valent than another, observations of behavior are desirable. In this study all subjects have made the choice of undertaking the role of independent entrepreneur, and from this fact it can be inferred that the expected consequences have net positive valence for these individuals. It is therefore seen as important to determine the individual's specific motivation to

establish a business venture and to succeed in it.

The relative strength of this particular valence to the entrepreneur may be subjectively inferred from an individual's experiential antecedents and post-decision preparations, relevant to the current entrepreneurial role. More objective evaluation of the individual's original motivation for entering the role, and for his continuing commitment to it, has been based on procedures used by Mayer and Goldstein (1961). As indicated in Section 2.44, strong motivation to own and operate independently a business venture, coupled with rational entry into that role, should greatly enhance eventual success. The rationality of the entry process can be indicated by scores on other variables, e.g. experience and preparation.

The intention of this study is not to enquire, in depth, into the motivational configurations of the entrepreneur, but to assume that he is highly motivated to succeed as an independent entrepreneur if he:

1. manifests behavior indicative of his desire to succeed (i.e. undertakes experiential and preparatory activity congruent with the logical and natural requirements of successful small business ownership), and

2. expresses positive and ambitious reasons for entering small business ownership, with a strong and definite desire to succeed.

A test of the validity of these assumptions will be available by relating the evidence gained to scores of achievement motivation for the same sample.

The first assumption may be verified from observation of behavior. To assess the expression of motivation strength a suggested scale of reasons for desiring and entering business ownership was drawn up, ranging from those regarded as indicating strong, positive motivation to succeed to those evidencing weak or defensive reasons. There is a clear analogy between these two extremes and the motivators and hygiene factors of Herzberg's (1959, 1966) two-factor theory of work motivation. It is expected that subjects scoring high on this scale will be more self-confident and will behave in ways which are instrumental for satisfying their aspirations. Those scoring low on the scale can be assumed to have lower expectancy of achieving their desired outcomes, since they will probably manifest an inclination to avoid failure, which has been shown to involve restriction of goal-directed behavior (see Section 2.4521). Such individuals are also likely to have an inappropriate perception of required role activity, and will possibly attempt to make the transition from employee to independent entrepreneur with little thought of the long-range consequences, little or no specific post-decision preparation, and without realistic expectations. Under such circumstances these individuals may reasonably be expected to adopt defensive coping techniques and inhibit goal-oriented activity to the point where failure becomes almost inevitable. There is postulated a significant relationship between role success motivation and affective reaction to role stress.

The role success motivation scale, Part H of the questionnaire, is shown in Appendix C. Scoring methods are outlined in Section 5.5.

5.415 Affective Reaction

The ability to work effectively under stress conditions may be implied from the lack of or presence of psycho-physiological responses or symptoms, verified from the quality of psycho-motor and cognitive output, or assessed from the individual's responses to questions about his affective reaction to the problems, difficulties and stress involved in the performance of the role being studied.

The use of several techniques of ascertaining affective reaction to the stress of the entrepreneurial role would be desirable. Various constraints, including the lack of reliability and validity evaluation of most potential methods, resulted in a compromise strategy being adopted. It was thought that direct questioning of the sample entrepreneurs, particularly towards the end of the interview when productive rapport had been established, would elicit responses sufficiently candid to provide a reliable and realistic measure of perceived affective reaction. To this end a number of direct questions were prepared, each with five responses based on the Likert-type format. The questions were found to have acceptable stability with a test-retest reliability co-efficient of 0.8341 (significant at $p < .001$ in a two-tailed test; six weeks time span; N = 32 small firm entrepreneurs). The set of 21 questions (the final three having dichotomous "Yes" or "No" responses) provided a range of scores on this variable of 21 to 96.

The affective reaction questions, Part P of the questionnnaire, are shown in Appendix C. Scoring procedures are explained in Section 5.5.

5.42 PATTERNS OF EXPERIENCE AND PREPARATION

All variables classified as experiential and/or preparatory were measured by direct questioning, whereby information was gained about the duration and relevance of each subject's occupational, managerial and entrepreneurial experience and specific post-decision preparation for entrepreneurship.

These questions (Part C for pre-decision experience and Part I for post-decision preparation) are shown in Appendix C. Scoring procedures are explained in Section 5.5.

5.43 CONCURRENT ROLE OBLIGATIONS

Direct questions, relating to three concurrent role obligations, were used to ascertain the extent of commitment to responsibilities other than small business ownership/management. These three sets of questions (Part J for multiple job holding, Part K for membership in organisations and Part L for marital and family obligations) are shown in Appendix C. Actual scoring procedures are demonstrated in Section 5.5.

5.44 OTHER FACTORS

For all other factors included in this study direct questions were asked and responses scored as indicated in Section 5.5. The

questions relating to each of these factors are shown in Appendix C as follows:

Part B Education

D Age of Entry to Ownership

E Religious Affiliation

F Family Background

M Sex

N Physical Condition

5.45 BUSINESS PERFORMANCE

As indicated in Sections 2.8 and 3.4, the ability to remain in business, implying the ability to operate a profitable venture, is regarded, for the purposes of this study, as the primary criterion of successful small business performance. Irrespective of what other objectives or aspirations an individual may have for being in business as an independent entrepreneur, failure to remain operational results in either temporary or permanent, partial or total, failure to achieve such objectives or aspirations. If this study is to have any pragmatic justification and value to exisitng and aspiring entrepreneurs the criterion of success or failure must be meaningful. Such requirements led the author to evaluate alternative accounting measures both as criteria for success and predictors of failure.

Since it was deemed necessary to use a rigorous assessment of entrepreneurial performance it was decided that a dichotomous classification of successful and failed entrepreneurs would be inadequate. To be appropriate to, and meaningful in, the multiple

also needs uniformality!

regression procedures used in statistical analysis, a wide range of performance scores was required. For this reason the sample included 75 (30%) failed entrepreneurs. While no attempt was made to stratify the remaining 70% of the sample on the basis of degree of business success, it was anticipated that, from those 175 randomly selected entrepreneurs, a reasonably wide range of performance scores would result. This anticipation was in fact achieved; the sample included highly successful through to marginal performers, as well as the failures. All failed entrepreneurs in the sample had ceased business because of actual or impending financial difficulty, the extent of the monetary deficiencies varying considerably.

Empirical research on the predictive ability of alternative accounting measures and ratios is not widely reported, as Chambers (1967) has pointed out. Interest in this aspect of accounting became evident about that time, with research data being offered by Horrigan (1967) and Beaver (1968). Beaver (1968) examined a number of financial ratios to determine differences in their ability to predict business failure. Drawing on his own earlier study (Beaver, 1966) and those of Guthmann (1953) and Foulke (1957), Beaver tested fourteen ratios for short-term (one and two years before failure) and longer-term (four and five years before failure) predictive ability. He used financial statement data of 79 failed and 79 operating firms, across 38 industries, and with net asset values ranging from $600,000 to $45,000,000. With these data Beaver predicted success or failure for each firm in each of the five years before failure, and then calculated the percentage error in his predictions. His data

are presented in Table 5.5.

TABLE 5.5 PERCENTAGE ERROR FOR 14 RATIOS ...

Ratio	Year Before Failure				
	5	4	3	2	1
Cash Flow to Total Debt	22	24	23	21	13
	103	81	57	34	13*
Net Income to Total Assets	28	29	23	21	13
	114	86	57	34	13*
Total Debt to Total Assets	28	27	34	25	19
	133	105	78	44	19*
Current Assets to Total Assets	49	47	46	48	38
	230	181	134	86	38*
Quick Assets to Total Assets	40	48	36	42	38
	204	164	116	80	38*
Working Capital to Total Assets	41	45	33	34	24
	177	136	91	58	24*
Cash to Total Assets	38	36	30	29	28
	161	123	87	57	28*
Current Assets to Current Liabilities	45	38	36	32	20
	171	126	88	52	20*
Quick Assets to Current Liabilities	37	34	40	32	24
	167	130	96	56	24*
Cash to Current Liabilities	38	38	36	28	22
	162	124	86	50	22
Current Assets to Sales	51	49	48	51	44
	243	192	143	95	44*
Quick Assets to Sales	44	52	45	47	46
	234	190	138	93	46*
Working Capital to Sales	40	46	42	33	26
	187	147	101	59	26*
Cash to Sales	45	43	36	24	34
	182	137	94	58	34*

* cumulative percentage error from Year 1

Source: adapted from Beaver, 1968, p.118

Based on these data four ratios were selected as partial determinants of business performance scores for this study. Cash Flow to Total Debt, Net Income to Total Assets, Total Debt to Total Assets and Current Assets to Current Liabilities were selected - the first three because of their assessment by Beaver as markedly superior for all five years, and the latter being the next most reliable predictor in the short-term and also generally accepted by practising accountants as a significant index of short-term financial stability. Actual scoring procedures are outlined in Section 5.5.

In addition to the four financial ratios discussed above, entrepreneurs were also awarded scores for persistence (the number of years in business, with heavier emphasis on earlier years); growth in net sales income, in the number of persons employed and in net earningsbefore taxation from a base year (the first full year of operation) to the most recent full year of operation. Adjustments were necessary to standardise many calculations of net income because of variations in depreciation rates and methods of recording owners'/partners' "wages", "salary" or drawings. Such adjustments to available data were also required to calculate comparable cash flows and net earnings for two of the above mentioned ratios. Minor variations not detected made little difference to final performance scores because of the method used to allocating scores (Section 5.5).

The actual performance data sought, Part Q of the questionnaire, are shown in Appendix C.

5.5 SCORING, DATA ANALYSIS AND STATISTICAL PROCEDURES

The following exposition of the scoring methods used in this study is structured on the same basis as the questionnaire, and should be read in conjunction with the latter. The major groups of variables, which formed the framework of Chapters 2, 3 and 4, were broken down for presentation in the questionnaire. To maintain interest and variety and to avoid indifferent responses, the content and type of questions were varied throughout the questionnaire. In the following outline of scoring procedures some questions were not used to provide scores for the purpose of the regression analysis. They produced useful support data and are shown in Appendix C.

PART A BASIC DATA

PART B EDUCATION

Level Completed

9.	Finished Primary		1	Tertiary level-			
	High School to year-				Did not graduate		8
	One	2	Four	5	Certificate		8
	Two	3	Five	6	Diploma		9
	Three	4	Six	7	Degree		10

Relevance

10.	Yes	2	No	1
11.	Tertiary	2	Secondary	1
12.	Yes	2	No	1

PART C PRE-DECISION EXPERIENCE

OCCUPATIONAL (TRADE/PROFESSIONAL) EXPERIENCE

Duration

14.	None	1	6 to 10 years	4	
	Under 2 years	2	11 to 20 years	5	5-319
	2 to 5 years	3	Over 20 years	6	

Relevance

15.	Mainly the same	2	Mainly different	1	
16.	Yes	2	No	1	
17.	Recent	2	Not recent	1	

SALARIED MANAGERIAL EXPERIENCE

Duration

19.	None	1	6 to 10 years	4	
	Under 2 years	2	11 to 20 years	5	5-319
	2 to 5 years	3	Over 20 years	6	

Relevance

20.	Similar	2	Different	1	5-319
21.	Same/Similar	2	Different	1	
22.	Recent	2	Not Recent	1	

OWNERSHIP EXPERIENCE

Duration

25.	None	1	6 to 10 years	4	
	Under 2 years	2	11 to 20 years	5	5-319
	2 to 5 years	3	Over 20 years	6	

OWNERER (F-550) Range should be 3-6

PREOWNER (F-551) Range should be 4-12

"describe" on P 5-319

Relevance

26. Same [4] Similar [3] Different [2]

27. Recent [2] Not recent [1]

PART D AGE OF ENTRY TO OWNERSHIP

30. Under 20 years [1] 40 to 49 years [4]
20 to 29 years [2] 50 to 59 years [5]
30 to 39 years [3] 60 years or more [6]

not a scale! neg. F-565

not a proper scale

PART E RELIGIOUS AFFILIATION

31. Protestant [1] Jewish [2] Catholic [3] Other [4]

PART F FAMILY BACKGROUND (neg. 491)

2 institutional scales

Socio-economic Status

32. Employee-Manual/Technical [1] Self-Employed (own Business) [2]
Professional [3]

33. Primary only [1] High School - to year 3 [2]
Tertiary [4] beyond [3]

34. Wealthy [3] Quite Comfortable [2]
Not very well off [1]

35. Owned [3] Owned and rented [2] Rented [1]

Family Mobility

36. Overseas [3] Other Australian State [2]
Western Australia [1]

not a proper scale?

37. Five or more [6] Four [5] Three [4] Two [3]
One Only [2] None [1]

Parental Expectation and Discipline

38. Very strict [3] Fair/Democratic [2] Weak [1]

39. Brothers [4] [3] [2] [1] [1] [1]

Sisters (4) (3) (2) (1) (1) (1)

40. Yes [2] No [1]

41. Yes - in own business [4] No [1]

in family business [3]

as employee [2]

42. Very Good [5] Good [4] Average [3] Poor [2] Very Poor [1]

PART G PERSONALITY FACTORS

43. Achievement Motivation

	A	F	S	R	N
43.01	5	4	3	2	1
43.02	5	4	3	2	1
43.03	5	4	3	2	1
43.04	5	4	3	2	1
43.05	1	2	3	4	5
43.06	5	4	3	2	1
43.07	5	4	3	2	1
43.08	5	4	3	2	1

	A	F	S	R	N
43.09	5	4	3	2	1
43.10	5	4	3	2	1
43.11	5	4	3	2	1
43.12	1	2	3	4	5
43.13	1	2	3	4	5
43.14	5	4	3	2	1
43.15	1	2	3	4	5

43.16 Nil to $2000 and $7000 to $10000 [1]

$3000 to $6000 [2]

43.17 Nil to $4000 and $8000 to $10000 [1]

$5000 to $7000 [2]

43.18 $3000 to $10000 [1]

Nil to $2000 [2]

#44 contributes more than 45, 46, 47 due to range diff

PART H ROLE SUCCESS MOTIVATION

44. To make something of myself (to get somewhere) [7]

Desire to be independent and use own initiative [6]

Concern for future security for self and family [5]

No real future as employee [4]

Boredom in working for others [3]

Need work (either out of work or fear of same) [2]

To provide supplementary income [1]

Other reason [1]

45. Very strong [3] Strong [2] Not very strong [1]

46. Very strongly [3] Moderately [2] Fair/indifferent [1]

47. Very undesirable [3] Undesirable [2] Rather indifferent [1]

PART I POST-DECISION PREPARATION

Duration

48. Under 3 months [1] 1 to 2 years [4]

3 to 6 months [2] 2 to 5 years [5]

6 to 12 months [3] Over 5 years [6]

Relevance

49. Management experience Yes [2] No [1]

Relevant trade experience Yes [2] No [1]

50. Less than 25% [1] 25-50% [2] 50-75% [3] Over 75% [4]

51. Adequate [2] Inadequate [1]

52. Deliberate and planned [2]

Due somewhat to chance [1]

54. Deliberate and planned [2]
Due somewhat to chance [1]

56. None [1] 1 or 2 [2] 3 or 4 [3] 5 or more [4]

PART J MULTIPLE JOB HOLDING

58. Yes [2] No [1]

59. Nil [1] Under 5 hours [2] 5 to 10 hours [3]
11 to 15 hours [4] 16 to 20 hours [5] Over 20 hours [6]

PART K MEMBERSHIP IN OTHER ORGANISATIONS

60. Yes [1] No [2]

61. Sporting/Social [1] Political [2] Service/welfare [3]

62. Yes [1] No [2]

63. Recreation [1] Business contacts [2] Prestige/status [3]
Sense of duty or responsibility [4]

64. Yes [1] Uncertain [2] No [3]

65. Under 1 hour [1] 1 to 3 hours [2] 3 to 5 hours [3]
Over 5 hours [4]

PART L MARITAL STATUS AND FAMILY RESPONSIBILITY

66. Yes [2] No [1]

67. One/Two [3] Three/Four [2] Five/Six [1] Over Six [—]

68. Very [3] Average [2] No [1]
Full Support [3] Indifferent [2] No [1]

69. In Home Duties only [3]
Home Duties and Part-time Help in Family Business [2]
Home Duties and Outside Job [1]

PART M SEX

70. Male [1] Female [2]

PART N PHYSICAL CONDITION

71. Frequently [1] Sometimes [2] Rarely [3]

72. Fit/energetic [3] Fairly well [2] Tired/sluggish [1]

PART O PERSONALITY FACTORS

73. Interpersonal Response Traits

All 30 items were scored as:

EXTREMELY UNDESIRABLE					EXTREMELY DESIRABLE
1	2	3	4	5	6

The items designated Compliant were those numbered 2, 3, 9, 13, 15, 17, 22, 24, 27 and 30. Aggressive orientation was measured by items numbered 4, 7, 8, 11, 12, 18, 20, 21, 26 and 28 while Detached items were numbered 1, 5, 6, 10, 14, 16, 19, 23, 25 and 29.

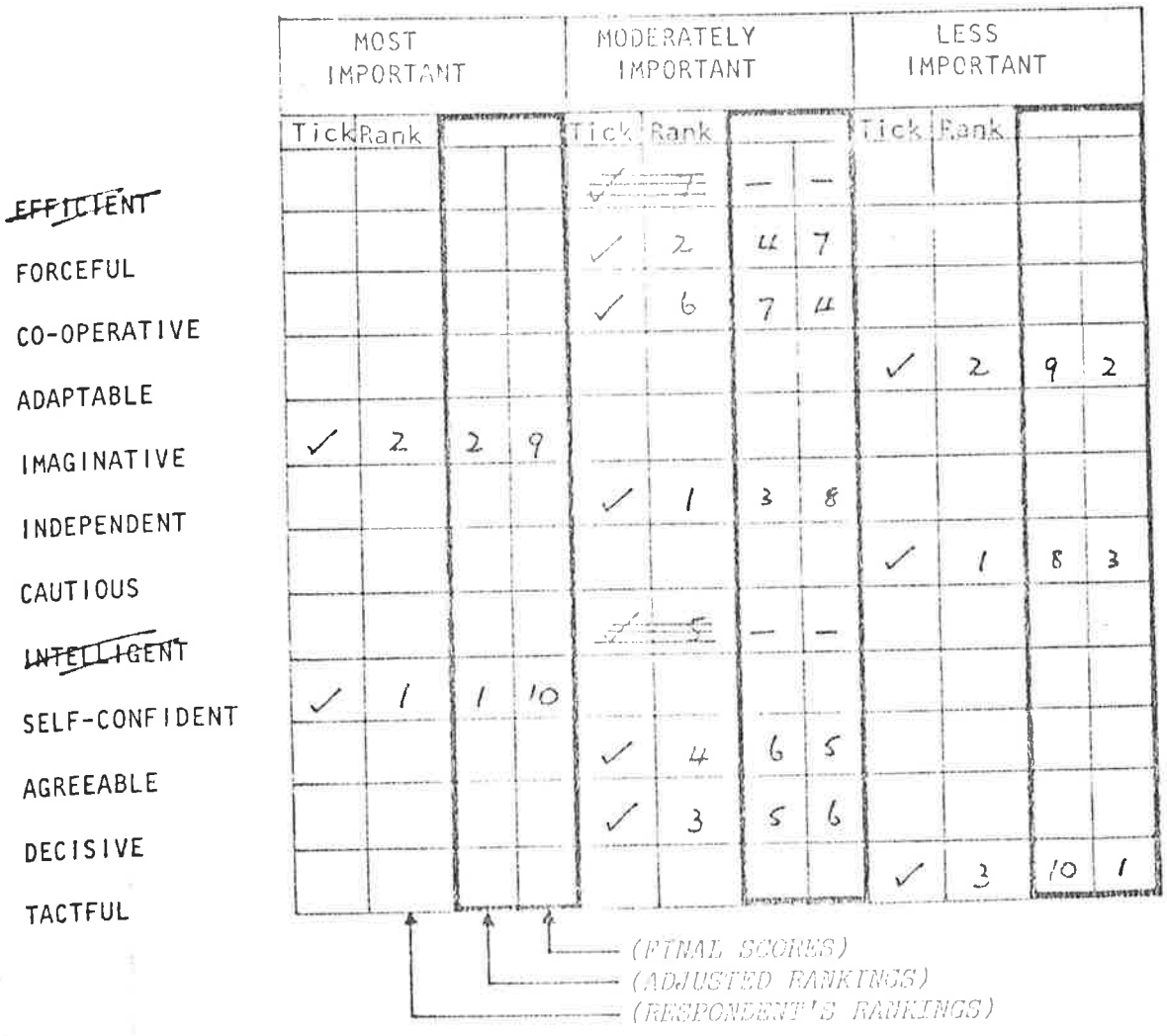
Scores (as above) were summed for each group of ten items to produce separate Compliant, Aggressive and Detached sub-scale totals for each respondent, with a possible range of 10 to 60.

74. Role Perception

The scoring process involved three stages. First the rankings of the two dummy traits were eliminated and the remaining

rankings adjusted upwards where necessary. In the following example, the new rankings, from 1 to 10, are shown in the left column of the boxed area. The second step was to give each ranking a score. The top rank (i.e. rank 1 in "most important") was given the score of 10, the second rank given the score of 9, and the lowest rank (i.e. rank 10 in "less important") was given the score of 1. The scores are shown in the right hand column of the boxed area in the example. Finally, the scores for all "inner-directed" and all "other-directed" traits were totalled separately. For each of the two categories the possible range of scores was 15 - 40.

Example:



Scores for the "inner-directed" sub-scale were produced by totalling final scores (as shown above) for forceful, imaginative, independent, self-confident and decisive. "Other-directed" scores resulted from summing the final scores for the remaining five traits.

PART P AFFECTIVE REACTION

Items were scored as shown below and summed to produce one affective reaction score.

75.01	1	2	3	4	5	75.10	1	2	3	4	5
75.02	1	2	3	4	5	75.11	5	4	3	2	1
75.03	1	2	3	4	5	75.12	1	2	3	4	5
75.04	1	2	3	4	5	75.13	1	2	3	4	5
75.05	1	2	3	4	5	75.14	1	2	3	4	5
75.06	1	2	3	4	5	75.15	1	2	3	4	5
75.07	5	4	3	2	1	75.16	1	2	3	4	5
75.08	5	4	3	2	1	75.17	1	2	3	4	5
75.09	1	2	3	4	5	75.18	1	2	3	4	5

75.19	Yes	2	No	1
75.20	Yes	2	No	1
75.21	Yes	2	No	1

PART Q BUSINESS PERFORMANCE

78.01 Years in Business

1 year	4	4 years	10
2 years	7	5 years	11
3 years	9	6 or more years	12

78.02 Growth in Net Sales Income (most recent year as percentage increase over first full year)

Decline	–	150% to 200%	4
Nil to 50%	1	200% to 400%	5
50% to 100%	2	Over 400%	6
100% to 150%	3		

78.03 Growth in Number Employed (most recent year as percentage increase over first year)

Decline	–	150% to 200%	4
Nil to 50%	1	200% to 400%	5
50% to 100%	2	Over 400%	6
100% to 150%	3		

78.04 Growth in Net Earnings before Taxation (most recent year as percentage increase over first full year)

Decline	–	150% to 200%	4
Nil to 50%	1	200% to 400%	5
50% to 100%	2	Over 400%	6
100% to 150%	3		

78.05 Financial Ratio - Cash Flow to Total Debt (net earnings plus depreciation/total liabilities)

0 to 20%	1	80% to 100%	5
21% to 40%	2	100% to 250%	6
41% to 60%	3	250% to 500%	7
61% to 80%	4	Over 500%	8

78.06 Financial Ratio - Net Earnings to Total Assets

0 to 5%	1	31% to 40%	5
6% to 10%	2	41% to 50%	6
11% to 20%	3	51% to 100%	7
21% to 30%	4	Over 100%	8

78.07 Financial Ratio - Total Debt to Total Assets

Over 500%	1	31% to 40%	5
101% to 500%	2	21% to 30%	6
51% to 100%	3	11% to 20%	7
41% to 50%	4	0 to 10%	8

78.08 Financial Ratio - Current Assets to Current Liabilities

Less than 50%	1	151% to 250%	4
51% to 100%	2	251% to 500%	5
101% to 150%	3	Over 500%	6

Following the scoring of all questionnaires, in the manner outlined above, scores for each respondent on each variable and major components thereof, were recorded on computer coding sheets and then punched for computer processing and analysis. Various sub-programmes of the *Statistical Package for the Social Sciences*, (Nie, Bent and Hull, 1970), hereafter referred to as SPSS, were used as appropriate to the data and statistical procedures required for hypothesis testing and presentation in this thesis. All data analysis was undertaken through the computing facilities within the Department of

Computing and Information Processing at the Western Australian Institute of Technology, using the CYBER - CONTROL DATA VERSION 3.4.

As with most types of social science research the initial task in the data analysis stage was to indicate the fundamental features of the distribution and variability of the variables. To this end summary statistics were produced *via* the SPSS sub-programme CODEBOOK which computed and printed one-way frequency distributions (including absolute, percentage and cumulative frequencies) and support statistics (mean, median, mode, standard deviation, standard error, variance, skewness, range and minimum and maximum scores). As an option the histogram for each distribution was printed. In this thesis, Section 6.1 presents a descriptive analysis of each variable with certain statistics; there is a summary table of all relevant statistics at the end of Section 6.1; and Appendix F illustrates the distributions by histogram (based on percentages, with absolute frequencies shown above each bar).

A major concern of the empirical phase of this study has been the identification of significant relationships between the variables. For this purpose several SPSS sub-programmes were used. Sub-programme CROSSTABS produced bivariate joint frequency distributions, thus permitting contingency table analysis with tests of significance and measures of association. The strength of any relationship between two variables may be evident from observation of the contingency table, and the question of whether the observed differences are statistically significant or due to sampling error can be resolved by use of the

support statistics and tests. The Chi-square statistic (χ^2), has been used to test for independence (or lack of statistical association) between the two variables - it can therefore be used to test the hypothesis that there is no relationship.* Appendix G illustrates all crosstabulations relevant to the hypothesized relationships presented in Chapter 4.

The SPSS sub-programme SCATTERGRAM produced graphical plotting of all paired scores for any two variables, the dependent variable on the vertical axis and the independent variable on the horizontal. This sub-programme also produced such support statistics and tests as a two-tailed test of significance, Pearson's Product-Moment correlation co-efficient (r), variance (r^2), significance of r (from a t test), standard error of the estimate, intercept with the vertical axis and slope of the regression line. Appendix H provides all relevant scattergrams and statistics.

Sub-programme FACTOR was used to create a correlation matrix for all variables to support the CROSSTABS and SCATTERGRAM output. These data

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* Note on Use of Chi-square (χ^2) Test of Significance

The distribution of χ^2, used in determining critical significance values, is a continuous theoretical frequency curve, whereas many of the frequencies in this study are discrete quantities. Where the expected frequencies are small, the actual sampling distribution of χ^2 may demonstrate marked discontinuity. The continuous curve may provide a poor fit to the data, and appreciable error may occur in the estimation of probabilities, these being areas under the continuous χ^2 curve. For small values of N the continuous normal curve is a poor fit to the discrete binomial.

In this study, with a large N (250), and generally large numbers of degrees of freedom applicable to these data, the Yates' correction for continuity has not been used as difference in results attained will be negligible.

were essential to the testing of hypotheses concerning the degree of association between any two variables. The acceptance or rejection of each primary and secondary hypothesis is based substantially on data produced from the CROSSTABS, SCATTERGRAM and FACTOR sub-programmes.

This study was founded on the need to develop a model of entrepreneurial effectiveness by which prediction of the dependent variable (the quality of entrepreneurial performance in a small business) is possible from a knowledge of the values of a range of independent variables (various characteristics of entrepreneurs). Multiple regression, an extension of the use of bivariate correlation procedures to multivariate analysis, allows the researcher to study the linear relationship between a set of independent variables and a dependent variable while taking account of the inter-relationships among the various independent variables. The end product of multiple regression analysis, the multiple regression equation, is an expression of the linear combination of independent variables which provides optimum estimation of the dependent variable from simultaneous consideration of those independent variables. Since the intent has been to identify factors that are possible causes of the variable under consideration, and to assess the effectiveness of those predictor variables, it is desirable to approach the problem by focusing on explanation of variance. In multiple regression analysis, researchers seek to identify how much of the variance in the dependent variable is attributable to selected independent variables. Therefore the basic problem in multiple linear regression is to determine the weights (regression co-efficients) which minimize the equation residual or

unexplained (error) variance. These weights (usually designated $b_1, b_2, \ldots b_n$) express the net change in the dependent variable for a one unit change in any single independent variable, holding all other independent variables constant. Since independent variables are frequently expressed in different units of measurement, it is useful to express regression co-efficients in standard deviation units. These beta co-efficients (β) are pure numbers and are directly comparable.

SPSS includes a sub-programme, REGRESSION, which offers step-wise regression analysis. This programme was used to select the best predictor variable and then recursively construct the prediction equation by the addition of further independent variables, in such a manner that the variable added in each step provided the optimum prediction, in conjunction with the previously added independent variable(s). The programme employs two criteria in the selection of successive independent variables. The first is based on the significance of the normalized regression co-efficient (β) of the prospective independent variable were it brought into the equation. The F statistic is used to measure the significance of β.

The second criterion is a value known as the tolerance. A large tolerance (to a maximum of 1) indicates that a new "dimension" has been added to the equation. The amount of additional variance in the dependent variable explained by the inclusion of the new independent variable is the product of β^2 (normalized regression co-efficient squared) and the tolerance.

CHAPTER 6 ANALYSIS AND INTERPRETATION OF DATA

6.1 A DESCRIPTIVE SURVEY

In this Section there is offered brief discussion on the data collected for each of the study variables. It therefore represents a series of short descriptions of the sample entrepreneurs on the bases of the variables used in the study. Such descriptions should be read in conjunction with Appendix F which provides more detailed graphical data. A summary table of all relevant statistics is provided at the end of this Section (page 360).

6.11 GENERAL CHARACTERISTICS

Industrial Grouping (Figure F1)

Sample entrepreneurs were selected from four industrial groups, details of the stratification criteria being given in Section 5.2. The sample included 26 manufacturers (10.4%), 108 retailers (43.2%), 84 service firms (33.6%) and 32 wholesalers (12.8%).

Organisational Type (Figure F2)

Selection of sample entrepreneurs was not based on criteria relating to organisation/ownership type or legal form. Of the 250 entrepreneurs, 78 (31.2%) were sole traders, 118 (47.2%) were partners and 54 (21.6%) were owner/directors of private companies. Figure F2 offers a comparison between the study sample and the author's 2,000 firm postal survey (Section 1.4) on the basis of organisational type or legal form.

Operating Status

As outlined in Section 5.2 to gain a sample as widely representative of performance levels as possible, 75 failed entrepreneurs were selected. The remaining 175 (70%) entrepreneurs were operating at the time of the interview.

Age of Firms (Figure F3)

Although the age of each firm was not used as a study variable, this information was produced in Part Q of the questionnaire (Business Performance). When compared with the ages of firms in the author's postal survey (in Figure F3), a clear similarity is observable.

Size of Firms (Figure F4)

No deliberate attempt was made to select entrepreneurs from firms of any particular size category, except that no firm employing more than 50 persons was included. The result was that 108 entrepreneurs (43.2%) owned firms with fewer than four employees, 84 (33.6%) employed 4-10 persons, 40 (16.0%) employed 11-20 persons and 18 (7.2%) employed 21-50 persons. A comparison between this data and the distribution of firms in size categories from the author's postal survey is illustrated in Figure F4.

6.12 PERSONALITY CHARACTERISTICS

Achievement Motivation (Figure F5)

The questionnaire provided for a possible range of n-Achievement scores of 18 to 81, the higher the score the higher the measured level of motivation. Actual scores varied from 25 to 79, a range of 54. The mean score was 51.876 and scores were spread rather widely, the standard deviation being 15.380. One unexpected feature of these data, given the anticipation that individuals who undertake independent entrepreneurship will have fairly strong achievement motivation, is the fact that the distribution was bi-modal. Twenty four percent of scores fell within the lowest quarter of the range, 29.6% in the next quarter, 20.0% within the third quarter and 26.4% within the uppermost quarter. Very clearly, many individuals undertake entrepreneurial roles without a strong generalised disposition to excel, to strive persistently and to compete against standards, both self-imposed and set by others. Examination of the correlation between n-Achievement scores and small business performance will indicate whether or not those entrepreneurs lacking in achievement motivation (as measured by the instrument used in this study) are more likely to fail or operate marginal ventures.

In the risk preference section of Part G (Questions 16, 17 and 18) subjects who indicated risk-aversion or risk-proclivity earned low scores while those demonstrating moderate risk preference earned higher scores. The distribution of scores was:

Score 3	14.4%
4	22.0
5	29.0
6	34.6
	100.0%

From these data it is strongly suggested that entrepreneurs in this sample are moderate risk-takers in situations where the outcome is substantially dependent on their own ability.

Interpersonal Response Traits

Each of the three sub-scales measuring Compliant, Aggressive and Detached interpersonal orientation provided a range of scores from 10 to 60.

Compliant Orientation (Figure F6)

Actual scores ranged from 15 to 51, the mean being 36.012 and the standard deviation 7.872. The distribution exhibited some negative skewness (-.335). Ten percent of the scores fell within the lowest quarter of the range then 26.4%, 41.6% and 22.0% in the top quarter. The unexpected feature of this distribution was its negative skewness, since the research literature tended to suggest that compliant interpersonal tendencies were not likely to be associated with entrepreneurial activity. However, more meaningful conclusions may be drawn from compliant interpersonal orientation scores correlated with other variables.

Aggressive Orientation (Figure F7)

Scores ranged from 16 to 58, with a mean of 38.240 and a standard deviation of 10.734. Percentages of scores falling within each quarter of the actual range of scores (from lowest to highest) were 10.4%, 26.4%, 24.8% and 38.4% respectively, indicating a bi-modal distribution, with slight positive skewness (.017). Both the mean and standard deviation being slightly higher than those associated with the Compliant sub-scale, indicated that the sample entrepreneurs were possibly higher in aggressive orientation than in compliant, and more widely dispersed in the former characteristic than in the latter. Comparison of the percentage of cases within each quarter of the range of scores in each sub-scale confirms the above observations. For example the frequency of scores lying within the uppermost quarter of the range of scores for the Aggressive sub-scale (38.4%) is significantly higher than is the case with the Compliant sub-scale (22.0%).

Detached Orientation (Figure F8)

The range of scores in this sub-scale was narrower than in the associated sub-scales (19 to 52), the mean score being 37.164 and the standard deviation 7.024. The distribution was fairly normal with some positive skewness (.146). The dispersion of scores by quarters of the range of actual scores was 2.8% within the lowest quarter, then 31.6% 42.8% and 22.8%. The mean of the Detached sub-scale was slightly closer to the Aggressive sub-scale mean than to the Compliant sub-scale mean, as was suggested in Section 2.42.

Role Perception

Each of the sub-scales measuring role perception, designated Inner- and Other-Directedness, offered a range of scores from 15 to 40.

Inner-Directedness (Figure F9)

Scores ranged from 17 to 39 with a mean of 27.848 and a standard deviation of 5.392. The distribution had a slight positive skewness (.023). The dispersion of scores within each quarter of the range of actual scores were 15.2%, 36.0%, 29.2% and 19.6%, from lowest to highest.

Other-Directedness (Figure F10)

Scores ranged from 17 to 37, the mean score being 27.960 and the standard deviation 4.570. The distribution was negatively skewed (-.126). The dispersion of scores within each quarter of the total range of actual scores, from lowest to highest, was 11.2%, 36.0%, 40.0% and 12.8%.

Entrepreneurs in this sample appeared to have slightly more other-directed orientation in their role perception designation than inner-directed orientation. This conclusion was unexpected, given the validity of previously discussed research studies into these interpersonal orientations and of the measurement technique employed in this study. Correlation analysis, involving role perception scores and other variables, should demonstrate more clearly any true relationships.

Role Success Motivation (Figure F11)

This measure of expressed specific role success motivation provided a possible range of scores from 4 to 16 and actual scores occupied this full range. The mean score was 9.984 and the standard deviation 2.607, the distribution having a distinct positive skewness (.206). In the lowest quarter of the full range of actual scores fell 17.2% of the scores, a further 43.6% falling within the next quarter. Thus only 39.2% of all scores were within the top half of the full range of actual scores, a rather surprising dispersion for this variable.

Affective Reaction (Figure F12)

The full range of possible scores was from 21 to 96 and actual scores ranged between 26 and 94. The mean score was 59.172, and standard deviation 20.747. The distribution was bi-modal, indicating that the majority of entrepreneurs in the sample tended to have either relatively unfavourable or relatively propitious affective reaction to the stress of the role. The dispersion of scores on the basis of quarters of the full range of actual scores was (from lowest to highest) 32.8%, 19.6%, 19.2% and 28.4%. Noteworthy is the similarity between the distribution of affective reaction scores and those of achievement motivation for this sample. This suggests a significant relationship.

6.13 PATTERNS OF EXPERIENCE AND PREPARATION

Occupational Experience

Duration of Occupational Experience (Figure F13)

The duration of occupational experience of the sample entrepreneurs ranged from none (3.6% of the sample) to over 20 years (11.6%), with the 6-10 year period being the modal class interval. The distribution of scores showed a distinct skewness toward the upper class-intervals (-.261).

Relevance of Occupational Experience (Figure F14)

In a range of scores from 1 (indicative of a lack of relevance in occupational experience) to 6 (highly relevant occupational experience) the mean score was 3.868; the standard deviation 1.553. The distribution showed negative skewness (-.166) indicating that a majority of sample entrepreneurs tended to have relevant occupational experience. This supports the proposition that entrepreneurs are more likely to remain within their particular trade or profession when entering business ownership. Despite this conclusion it should be noted that approximately one sample entrepreneur in every four was involved in a business for which he had little or no relevant and/or recent technical expertise. The extent of the consequences of this lack of relevant occupational experience on the potential for success as an owner/manager will be discussed later in this Chapter.

Total Occupational Experience (Figure F15)

Combined duration and relevance scores provided an indication of the total occupational experience of the sample entrepreneurs. Within the range of 2 to 12, low scores indicated short-term and irrelevant experience and higher scores pointed to more substantial, recent and

relevant occupational experience. The mean score was 7.800, the standard deviation 2.322.

The distribution showed negative skewness (-.096) as did each of the two components of the scale. The general conclusion from these data is that although about 40% of the owners in this sample were reasonably well prepared in the technical aspects of the entrepreneurial role, as many as 30% indicated a serious lack of adequate and relevant grounding. That this aspect of preparation is important for effective performance as an entrepreneur is evidenced by the fact that duration of occupational experience correlated .3281 with small business performance, relevance of occupational experience .7146, and total occupational experience .6624, all co-efficients being highly significant at $p < .001$.

Managerial Experience

Duration of Managerial Experience (Figure F16)

The duration of managerial experience of the entrepreneurs in the sample ranged from none (22% of the sample) to over 20 years (6.4%). The modal class interval was that labelled *Under 2 Years*, and the distribution showed a marked positive skewness (.448). A total of 115 owners (48.0% of the sample) had either none or less than two years of managerial experience.

Relevance of Managerial Experience (Figure F17)

Within a range of scores from 1 (no relevant managerial experience) to 6 (highly relevant managerial experience), the mean score was 3.252 and the standard deviation 1.692. Of the total sample 139 owners (55.6%) had either no relevant managerial experience, or had experience of a different type, experience in a different type of firm or no managerial experience within three years of commencing the present business.

Total Managerial Experience (Figure F18)

These data indicated total managerial experience, incorporating duration and relevance. Low scores, within the range 2 - 12, indicated short-term experience lacking in relevance, while higher scores were indicative of longer and more relevant and recent managerial experience. The mean score was 6.140, the standard deviation 3.015. Approximately 30% of the owners in this sample were grossly inadequate in their preparation for the managerial and supervisory demands of the entrepreneurial role, and another 20% were partially deficient. An indication of the serious implications of a lack of managerial experience may be derived from the fact that, in this study, duration of managerial experience correlated .5765 with small business performance, relevance of managerial experience .6703, and total managerial experience .6656. All these co-efficients are highly significant at $p < .001$.

Entrepreneurial Experience

Duration of Entrepreneurial Experience (Figure F19)

As illustrated in Figure F19 the great majority (75.2%) of owners in this sample had never owned a previous business, but 62 (24.8%) brought to the present business some experience in ownership. Ignoring the *None* class interval, the modal duration time span was *Under 2 Years* (39 cases = 15.6%). In response to Question 28 *(How many previous businesses have you owned (if any)?)*, of the 62 previous owners, 45 (72.6%) indicated ownership of one previous firm, 16 (25.8%) stated that they had owned two previous firms, and the remaining one owner (1.6%) had owned three previous ventures. The most common reason given for the closure of the previous business was insolvency/bankruptcy (i.e. actual failure), with 41.9% of the 62 previous owners, followed by unprofitability or impending failure (32.4%), personal problems (17.7%), health (4.8%) and other reasons (3.2%).

Relevance of Entrepreneurial Experience (Figure F20)

Since 75.2% of the sample owners indicated no previous entrepreneurial experience only 62 owners were able to report meaningfully on relevance. Of this number, ten (16.1%) indicated previous ownership of the same or similar type of business in recent years (defined as being within three years of initiating the present business). A surprising 52 owners had either non-recent entrepreneurial experience and/or such experience in a different type of firm. When asked why the present and previous firms were so different (within different

industries in fourteen cases) the reason most commonly offered was that the owner believed his earlier failure or difficulty showed that he was not suited to that type of business, the outcome being a subsequent attempt with a venture of a different type. In most cases where this had occurred, the former business was far more rational in terms of prior occupational experience than the more recent venture.

Total Entrepreneurial Experience (Figure F21)

The distribution of scores on this scale followed closely those of the two components, duration and relevance.

Total Pre-Decision Experience (Figure F22)

Scores on this scale were compiled by summing scores for each subject on total occupational, managerial and entrepreneurial experience scales. Within the range 5 to 32 the mean score was 16.180 and standard deviation 5.948. The distribution was markedly skewed in a positive direction (.387) indicating fairly significant deficiency in one or more facets of pre-decision experience on the part of some 83 owners (33.2% of the sample) and dubious quality of experience in the case of a further 51 owners (20.4%). A substantial 28.8% of cases fell within the lowest quarter of the total range of actual scores 10.0% in the uppermost quarter.

Post-Decision Preparation

Duration of Post-Decision Preparation (Figure F23)

The duration of preparatory activity specific to the needs of the proposed venture ranged from a minimum of five days to a maximum of almost nine years. The modal class interval was *Under 3 Months*, with 25.6% of the sample, and the distribution was distinctly skewed in a positive direction (.390). Practically half (49.6%) the sample owners reported having less than six months preparation and most of these, with hindsight, offered the opinion that they thought their own particular period of preparation to be insufficient.

Relevance of Post-Decision Preparation (Figure F24)

Within a range of 7 (little or no post-decision preparation of any relevance) to 17 (substantially relevant and propitious preparation) the mean score was 10.776 and the standard deviation 2.442. The distribution showed significant positive skewness (.284), there being 36.0% of cases in the lowest quarter of the range of scores and 7.6% within the uppermost quarter. The clear implication is that far too many small business ventures are initiated without adequate financing, with heavy borrowing, without consultation with knowledgeable people (particularly relating to the feasibility of the venture), and without deliberate and soundly based plans on the type of business and its location.

Total Post-Decision Preparation (Figure F25)

Summing post-decision preparation duration and relevance scores produced a range of 8 to 21 in which the mean score was 13.488 and

standard deviation 3.368. The distribution was positively skewed (.280) as were both component distributions. These data re-inforce the assertion that inadequate specific preparation for business ownership and operation was the case with almost half the sample owners in this study. The significance of this lack of specific preparation is attested by the degree of measured relationship between this factor and small business performance (.5873 for duration; .6119 for relevance; .6902 for total post-decision preparation - all significant at $p < .001$).

6.14 *CONCURRENT ROLE OBLIGATIONS*

Multiple Job Holding (Figure F26)

Scores on this variable ranged from 1 (no other job) to 6 (holding another job involving 15 - 20 hours weekly). Apart from the 78.0% who reported no other job, the modal score was 3 (holding another job, involving less than five hours weekly) with 34 cases (13.6% of the sample).

Membership in Other Organisations (Figure F27)

A significant majority of cases (177 or 70.8% of the sample) reported active membership in *any type of club, association or society*. Of this group, 104 (58.8%) were involved in sporting/social club activity, 16 (9.0%) in political fields, and 57 (32.2%) in service/welfare work. Sixty three percent of those who reported membership were currently (or had recently been) an office bearer or committee member. Reasons given for membership were:

Recreation	127	71.7%
Business Contacts	2	1.1
Prestige/Status	7	4.0
Sense of Duty or Responsibility	41	23.2
	177	100.0%

When asked whether club membership/activity were, in any way, of benefit to the business, 18 (10.2%) replied in the affirmative, 86 (48.6%) reported that there was no benefit, and the remaining 73 (41.2%) were uncertain. Most members indicated that 1 - 3 hours weekly were put into club activities, the distribution being:

Less than 1 hour	11	6.2%
1 - 3 hours	93	52.5
3 - 5 hours	54	30.5
Over 5 hours	19	10.8
	177	100.0%

Marital Status and Family Responsibility (Figure F28)

Actual scores on this variable occupied the full possible range from 1 (not married) to 14 (married, no more than two dependents other than spouse, very happy family life, full support from family and spouse working at home duties only). Thirty four (13.6%) owners were not married. The mean score on this scale was 7.472 and the standard deviation 3.825. The distribution was negatively skewed (-.351) with scores of 9, 10, 11 and 12 being attributed to 25 (10.0%), 26 (10.4%), 23 (9.2%) and 29 (11.6%) cases respectively. It is clear from the data on this variable that over one third of the owners interviewed had little or indifferent support and encouragement from their families for their work. This lack of sympathy for the substantial demands from the entrepreneurial role by family members was particularly

noticeable with the failed and marginal owners.

6.15 OTHER FACTORS

Age of Entry to Ownership (Figure F29)

Scores ranged from 1 (less than 20 years of age) to 6 (over 60 years) with the modal class interval *30 to 39 years* (40.0% of the sample). The distribution was positively skewed (.458) indicating a tendency for younger persons to initiate business ventures - 67.2% of the owners in this sample started their present business between the ages of 20 and 39 years, and only 8.4% did so when over the age of 50.

Education

Level of Education Completed (Figure F30)

The distribution of scores on this variable was practically normal (skewness = -.036), the mean score (in a range from 1 to 10) being 5.536 and the standard deviation 2.301. Sample owners reported education levels completed across the full range - from primary education only (13 cases = 5.2%) to the completion of a degree (11 cases = 4.4%). The modal level completed was *High School Year Five* with 46 cases (18.4%).

Relevance of Education (Figure F31)

In an attempt to determine the relevance of formal education to small business ownership and management, a range of scores from 2 (no study

of any business or relevant technical subjects or courses) to 6 (study of both business and relevant technical subjects, the former to tertiary level) was provided. The modal score was 3 (73 cases = 29.2%) indicative of no business education but relevant technical education, the mean score 3.896 and the standard deviation 1.241. The distribution was positively skewed (.160), suggesting that more owners lack relevant education (as here defined) than have it.

Total Education (Figure F32)

With scores ranging from 3 (low level of completion and of little relevance to business or trade/profession) to 16 (tertiary degree held and highly relevant to business management and/or trade/profession) a fairly normal distribution resulted (skewness = .092), the mean score being 9.432 and the standard deviation 2.824. Within this scale the relevance component accounted for the positive skewness and it is this facet of the education variable that would appear to justify further study.

Physical Condition (Figure F33)

In a scale ranging from 2 (definitely lacking in physical health) to 6 (very fit and healthy) the distribution of scores was quite negatively skewed (-.286). One third of the owners interviewed reported being fit and energetic and rarely being absent from work through illness. However, 17 cases (6.8%) scored only 3, indicating significant health problems with detrimental effects on entrepreneurial performance. The mean score was 4.900 and the standard deviation .945.

Sex (Figure F34)

The sample was not stratified on the basis of sex, and there were 205 males and 45 females included. These figures represented, respectively, 82.0% and 18.0% of the sample.

Religious Affiliation (Figure F35)

Of the 250 owners in the sample, practically half (123 or 49.2%) were Protestant, 87 (34.8%) were Roman Catholic, and 13 (5.2%) Jewish. The remainder (10.8%) either had no religious allegiance, preferred not to answer the question or were of a non-Christian faith.

Family Background

Socio-Economic Status (Figure F36)

Scores ranged from 4 (father in manual/technical work and having primary education only; parents not financially well off and lived mainly in rented home) to 14 (father in professional work and having tertiary education; parents wealthy and owned the family home). In an almost perfectly normal distribution (skewness = -.008) the mean score was 8.348, the mode 10.000 and the standard deviation 2.234. The majority of owners in the sample had middle class backgrounds, as measured in this study.

Family Mobility (Figure F37)

Owners in the sample tended to be Australian by birth (203 = 81.2%) and (particularly) Western Australian (144 = 57.6%). The majority (178 = 71.2%) had experienced no more than two major occupational/ geographical moves with their parents. On a scale combining both scores, within a range of 2 (local born and no major moves) to 9 (born overseas and at least five major moves) the distribution was significantly skewed in a positive direction (.409), the mean score was 4.432 and the standard deviation 1.911.

Parental Expectation and Discipline (Figure F38)

Scores varied from 5 (indicative of weak discipline; poor relations with father; at least three older siblings and strong probability of a low level of parental expectation and encouragement) to 17 (fair/ democratic discipline; eldest child; good relations with father and strong probability of a high level of parental expectation and encouragement). The mean score was 10.036, the standard deviation 3.327. The distribution was skewed distinctly in a positive direction (.223) indicating that more cases fell towards the "lower" end of the scale.

Family Background Total (Figure F39)

It was assumed that summing scores on family mobility and parental expectation/encouragement of their children would provide a valid measure of one of the significant correlates of achievement motivation -

the degree to which children were required and encouraged to attain high standards of performance and independence of activity. Scores ranged from 7 to 24, with a mean of 14.468 and standard deviation of 4.628. The distribution was positively skewed (.318) indicating a tendency for owners in this sample to have experienced rather low and indifferent parental expectation and encouragement. These scores correlated .7318 with n-Achievement scores, thereby supporting Winterbottom's (1958) findings on the relation of achievement motivation to learning experience in independence and mastery.

6.16 BUSINESS PERFORMANCE (Figure F40)

As well as being stratified on the basis of industrial grouping, the sample used in this study deliberately included a number of owners of failed small firms. There was no known basis on which to select an appropriate number of failures, but to provide as wide a range of performance as possible, 75 failures (30.0% of the sample) were included

The total range of possible scores was 0 - 60, actual scores being distributed from 5 to 59. The distribution of scores was bi-modal (also a feature of the distribution of n-Achievement and affective reaction scores!), with 30.4% of scores falling within the lowest quart of the range, 11.2% in the next quarter, 24.4% in the third and 34.0% within the uppermost quarter. The distribution was negatively skewed (-.261) indicating a greater concentration of cases with higher scores. The modal score was 53 and the mean 33.896. Scores were widely dispersed, as evidenced by the bi-modal distribution and the standard

TABLE 6.1 SUMMARY OF DESCRIPTIVE STATISTICS OF STUDY VARIABLES (N = 250)

Variables	Computer Label	App. F Figure	Minimum	Maximum	Range	Mean	Mode	Median	Standard Error	Standard Deviation	Variance	Skewness
6.11 GENERAL CHARACTERISTICS		F 1										
Industrial Grouping		F 2										
Organisational Type		-										
Operating Status		F 3										
Age of Firms		F 4										
Size of Firms *	SIZE		1	4	3	1.872	1	1.702	.059	.931	.867	.795
6.12 PERSONALITY CHARACTERISTICS												
Achievement Motivation	ACHMOTIV	F 5	25	79	54	51.876	63	49.100	.973	15.380	236.535	.087
Interpersonal Response Traits												
- Compliant Orientation	INTCOMPL	F 6	15	51	36	36.012	36	38.875	.498	7.872	61.972	-.335
- Aggressive Orientation	INTAGGRS	F 7	18	58	40	38.240	36	36.276	.679	10.734	115.219	.017
- Detached Orientation	INTDETAC	F 8	19	52	33	37.164	31	38.033	.444	7.024	49.348	.146
Role Perception												
- Inner-Directedness	IODINNER	F 9	17	39	22	27.848	36	27.350	.341	5.398	29.077	.023
- Other-Directedness	IODOTHER	F10	17	37	20	27.960	27	28.200	.289	4.570	20.882	-.126
Role Success Motivation	MOTIVATE	F11	4	16	12	9.984	9	9.729	.165	2.607	6.795	.206
Affective Reaction	REACTION	F12	26	94	68	59.172	34	59.100	1.312	20.747	430.424	-.002
6.13 PATTERNS OF EXPERIENCE AND PREPARATION												
Occupational Experience												
- Duration	OCCUPDUR	F13	1	6	5	3.940	4	3.994	.081	1.274	1.623	-.261
- Relevance	OCCUPREL	F14	1	6	5	3.868	4	3.972	.098	1.553	2.412	-.166
- Total	PREOCCUP	F15	2	12	10	7.800	9	7.882	.147	2.322	5.390	-.096

TABLE 6.1 (continued) SUMMARY OF DESCRIPTIVE STATISTICS OF STUDY VARIABLES (N = 250)

Variables	Computer Label	App. F Figure	Minimum	Maximum	Range	Mean	Mode	Median	Standard Error	Standard Deviation	Variance	Skewness
6.13 Managerial Experience												
- Duration	MANAGDUR	F16	1	6	5	2.888	2	2.689	.096	1.514	2.293	.448
- Relevance	MANAGREL	F17	1	6	5	3.252	1	3.231	.107	1.692	2.864	.065
- Total	PREMANAG	F18	2	12	10	6.140	2	6.077	.191	3.015	9.093	.084
Entrepreneurial Experience												
- Duration	OWNERDUR	F19	1	5	4	1.376	1	1.165	.048	.757	.573	2.207
- Relevance	OWNEREL	F20	1	6	5	1.663	1	1.165	.037	.863	.745	1.499
- Total	PREOWNER	F21	1	10	9	3.244	1	1.330	.144	2.282	5.205	1.532
Total Pre-Decision Experience	PREXPERE	F22	5	32	27	16.180	11	15.423	.376	5.948	35.377	.387
Post-Decision Preparation												
- Duration	PREPADUR	F23	1	6	5	2.712	1	2.521	.089	1.413	1.997	.390
- Relevance	PREPAREL	F24	7	17	10	10.776	9	10.628	.154	2.442	5.966	.384
- Total	POSTPREP	F25	8	21	13	13.488	11	13.119	.213	3.368	11.345	.280
6.14 CONCURRENT ROLE OBLIGATIONS												
Multiple Job-Holding	MULTIJOB	F26	1	6	5	1.512	1	1.141	.067	1.061	1.126	3.099
Membership in other Organ. *	ORGAMEMB	F27	1	2	1	1.292	1	1.206	.029	.456	.208	.315
Marital Status and Family Responsibility	MARISTAT	F28	1	14	13	7.472	1	8.100	.242	3.825	14.628	-.351
6.15 OTHER FACTORS												
Age of Entry to Ownership *	AGESTART	F29	1	6	5	2.980	3	2.920	.067	1.066	1.136	.458
Education												
- Duration (Level Completed*)	EDULEVEL	F30	1	10	9	5.536	6	5.652	.146	2.301	5.294	-.036
- Relevance	EDURELEV	F31	2	6	4	3.896	3	3.805	.078	1.241	1.539	.160
- Total	EDUTOTAL	F32	3	16	13	9.432	8	9.333	.179	2.824	7.973	.092

TABLE 6.1 (continued) SUMMARY OF DESCRIPTIVE STATISTICS OF STUDY VARIABLES (N = 250)

Variables	Computer Label	App. F Figure	Minimum	Maximum	Range	Mean	Mode	Median	Standard Error	Standard Deviation	Variance	Skewness
6.15 Physical Condition	PHYSICAL	F33	3	6	3	4.900	6	4.947	.060	.945	.894	-.286
Sex *	SEX	F34	1	2	1	1.180	1	1.110	.024	.385	.148	1.666
Religious Affiliation *	RELIGION	F35	1	4	3	2.072	1	1.654	.071	1.128	1.272	.313
Family Background												
- Socio-Economic Status	SESTATUS	F36	4	14	10	8.348	10	8.400	.141	2.234	4.991	-.008
- Family Mobility	FAMMOBIL	F37	2	9	7	4.432	4	4.138	.121	1.911	3.652	.409
- Parental Expectation and Discipline	PAREXPEC	F38	5	17	12	10.036	10	9.714	.210	3.327	11.071	.223
- Total	FAMTBACK	F39	7	24	17	14.468	13	13.738	.293	4.628	21.415	.318
6.16 BUSINESS PERFORMANCE	PERFORMS	F40	5	59	54	33.896	53	39.250	1.110	17.549	307.965	-.261

Note: * = see relevant figure (Appendix F) for appropriate coding of class intervals

deviation of 17.549.

The unexpected feature of this distribution was the dearth of cases in the middle of the range. The similarity of this bi-modal distributio with those on both the achievement motivation and affective reaction scales strongly suggests significant relationships existing.

6.2 FUNDAMENTAL PROPOSITION

The quality of entrepreneurial performance, in the small business contex can be confidently predicted from a knowledge of the particular personal characteristics postulated in this model.

As outlined in Section 5.5, multiple linear regression analysis has beer used as the basis for determining the efficacy of the model of entrepreneurial effectiveness proposed in this study. The step-wise mo of multiple regression has been adopted to provide the best possible prediction with a minimum of independent variables. No pre-determined sub-set of independent variables was presumed, all such variables being eligible for entry into the analysis until the F level or tolerance measure became insufficient to warrant further computation. Of the 35 eligible independent variables in the study, the SPSS REGRESSION sub-programme entered 29 into the equation before the process became unprofitable.

The resolution of the question of whether the knowledge of an individual's particular configuration of personal characteristics is capable of permitting prediction (at the required level of confidence) of his potential for success as a small business owner/manager, is consequent upon the consideration of the multiple co-efficient of

determination (R^2), and the standard error (the standard deviation of the residual, and the typical error in prediction). At the point in the step-wise regression process where the selection and addition of a further independent variable into the regression equation adds a negligible increment to the R^2 statistic (signifying a negligible addition to the proportion of the variance in the dependent variable accounted for by the regression equation, and, hence, a minimal improvement in the predictive-ability of the equation), those variables in the equation provide the optimum prediction of the dependent variable.

As the multiple co-efficient of determination increases, the standard deviation of the residual or prediction error decreases. At about the point of optimum prediction the former statistic increases in negligible increments and the latter reaches its minimum value. Further additions of independent variables do little to increase R^2 and are accompanied by increases in the standard deviation measure. Table 6.2 indicates that with the inclusion of PAREXPEC (parental expectation) in step 19, the change in R^2 was only +.0004, while the standard deviation of the residual (which had reached minimum level after step 18) began to increase. The conclusion thus reached was that inclusion of independent variables up to, and including, step 18 (EDUTOTAL = education level and relevance) optimised dependent variable variance prediction. The F ratios for all variables when entered in the regression equation were highly significant at $p < .001$.

The REGRESSION sub-programme includes, in its computer print-out, both the raw score (unnormalized) and the normalized (or standardised) regression co-efficients, β and BETA respectively, in Table 6.2. These

TABLE 6.2 MULTIPLE REGRESSION SUMMARY (DEPENDENT VARIABLE = SMALL BUSINESS PERFORMANCE)

Step	Variable Entered	Multiple R	R^2	Change in R^2	Standard Deviation	Change in Std. Deviation	B*	Standard Error of B*	Beta *	Overall F	Significance
1	REACTION	.89934	.80863	+.80863	7.69049	-	.38151	.43793	.43739	1047.83694	< .001
2	IRTAGGRE	.91478	.83682	+.02819	7.11770	-.57479	.48035	.86822	.26690	633.31898	< .001
3	IRTCOMPL	.92819	.86154	+.02472	6.56081	-.[illegible]730	-.20360	.61244	-.11825	510.20748	< .001
4	[illegible]CUPREL	.93500	.87410	+.01237	6.30939	-.[illegible]02	.78327	.54104	.06711	426.41432	< .001
5	A[illegible]TIV	.93801	.87986	+.00546	6.14460	-.12590	.17033	.51000	.14032	357.50159	< [illegible]
6	IODINNER	.93981	.88325	+.00350	6.00[illegible]94	-.07475	.[illegible]	.10[illegible]10	.11131	300.38072	< [illegible]
7	MULTIJOB	.94156	.88654	+.00[illegible]	5.93610	-.07331	-1.[illegible]	.[illegible]	-.08550	270.12561	< [illegible]
8	MOTIVAIN	.94257	.88900	+.00246	5.91606	-.05804	.[illegible]	.[illegible]	.05339	241.36279	< [illegible]
9	IODOTHER	.94332	.89030	+.00130	5.[illegible]	-.03016	.[illegible]	.[illegible]	.00[illegible]65	217.52373	< [illegible]
10	IRTDETAC	.94435	.89275	+.00195	5.36809	-.04081	-.[illegible]	.100[illegible]	-.00565	198.94552	< [illegible]
11	MARISTAT	.94531	.89456	+.00131	5.82643	-.03761	-.[illegible]	.10[illegible]	-.03458	183.57331	< .001
12	AGESTART	.94644	.89575	+.00118	5.80795	-.02053	-.[illegible]	.39[illegible]	-.04513	169.69184	< .001
13	PREOCCUP	.94708	.89696	+.00121	5.78624	-.02171	.[illegible]1627	.35[illegible]83	.09476	158.02946	< .001
14	MANAGREL	.94758	.89791	+.00095	5.77166	-.01[illegible]3	-.60221	.34330	-.05817	147.64034	< .001
15	PREPADUR	.94790	.89851	+.00060	5.76195	-.[illegible]471	-.[illegible]273	.35565	-.03420	139.11616	< .001
16	ORGAMEMB	.94821	.89909	+.00058	5.76275	-.00420	1.02753	.86329	.02668	129.75566	< .001
17	EDULEVEL	.94846	.89957	+.00048	5.76150	-.00125	-.67857	.46354	-.08897	122.24072	< .001
18	EDUTOTAL	.94876	.90015	+.00058	5.75716	-.00434	.47077	.40515	.07575	115.69884	< .001

TABLE 6.2 (continued) MULTIPLE REGRESSION SUMMARY (DEPENDENT VARIABLE = SMALL BUSINESS PERFORMANCE)

Step	Variable Entered	Multiple R	R^2	Change in R^2	Standard Deviation	Change in Std. Deviation	B*	Standard Error of B*	Beta *	Overall F	Significance
19	PAREXPEC	.94898	.90056	+.00040	5.75807	+.00091					
20	OWNERDUR	.94910	.90079	+.00023	5.76390	+.00583					
21	RELIGION	.94913	.90086	+.00007	5.77454	+.01064					
22	SEX	.94915	.90089	+.00004	5.78621	+.01167					
23	PHYSICAL	.94917	.90092	+.00003	5.79816	+.01195					
24	POSTPREP	.94918	.90095	+.00003	5.81021	+.01205					
25	PREXPERE	.94919	.90097	+.00002	5.82257	+.01236					
26	FAMIBACK	.94920	.90098	+.00001	5.83522	+.01265					
27	OCCUPDUR	.94921	.90099	+.00001	5.84798	+.01276					
28	PREMANAG	.94921	.90100	+.00001	5.86106	+.01308					
29	OWNERREL	.94955	.90164	+.00064	5.85527	-.00579					
*	CONSTANT	-	-	-	-	-	-16.63054	5.09433	-		

* At Step 18 (inclusion of EDUTOTAL) - DF (Regression) = 18, DF (Residual) = 231

co-efficients indicate the relative strength of relationship between each independent variable and the criterion variable, as well as the direction of the relationship. In fulfilling this role in multiple regression analysis, the regression co-efficients reflect the weight of each independent variable necessary to minimize the unexplained or error variance, or residual.

On the basis of the data compiled in this study and presented in summary form in Table 6.2, the fundamental proposition of this research study is supported. With the inclusion of 29 (from 35) independent variables in the regression equation 90.164% of the variance in small business performance scores was accounted for. Placement of the first 18 predictors in the equation resulted in prediction of 90.015% of the variance in the dependent variable. The improvement in prediction by the inclusion of eleven more variables does not warrant such inclusion, particularly as the standard deviation of the residual (typical error in prediction) increases after step 18.

The variables included in the multiple regression equation, and accepted for the significance of their individual and interactive contributions to the predictive-ability of that equation, are those shown above the horizontal line in Table 6.2; those involved in the first 18 steps of the step-wise selection process.

6.3 PRIMARY PROPOSITIONS AND HYPOTHESES

All tables referred to in the following discussion of the hypotheses are located in Appendix G (e.g. Table G1 refers to Table 1 of Appendix

and all Figures are located in Appendix H.

PROPOSITION A

The quality of an individual's entrepreneurial performance (in the small business context) is substantially a function of his mental/emotional capacity and propensity to cope with the many and varied demands and stresses of that role.

As defined and measured for the purpose of this study, affective reaction and the quality of performance as an entrepreneur in the small business are significantly and positively correlated (see Hypothesis 1 discussion below). To the extent that:

(a) successful performance as the owner/manager of a small business venture (measured by objective accounting data) can be accepted as a valid indicator of entrepreneurial (i.e. innovative, adaptive, energetic) effectiveness, and

(b) affective reaction (as measured in this study) can be accepted as a valid index of the individual's mental/emotional capacity and propensity to cope with role stress in its many and varied forms,

the above proposition is supported by the data compiled in this study. Observation of failed and marginal owner/managers during the interviewing indicated more behavioral symptoms of stress than was the case with the more successful subjects. The observed symptoms included anxiety, nervousness, rather heavy smoking, lack of self confidence, marital tension, and indecisive replies to questions. Such observations further supported the above proposition.

Hypothesis 1

Affective reaction and the quality of performance as an independent entrepreneur in a small business are significantly and positively correlated.

Table G1 and Figure H1 (in Appendices G and H respectively) indicate a strong positive relationship between the ability to cope with stress in the entrepreneurial role and successful performance in that role. These data show that the quality of small business performance improved with the individual owner/manager's capacity and inclination to cope with role stress. The matter requiring specific resolution before this hypothesis can be either accepted or rejected is whether the indicated association is due to sampling error or reflects a statistically significant relationship.

From the crosstabulation data in Table G1, $\chi^2 = 446.9855$, and there are 90 degrees of freedom [(no. of rows - 1) (no. of columns - 1)]. With 90 df a χ^2 of this magnitude is highly significant at $p < .001$ (a χ^2 value of 137.208 being necessary (with 90 df) for significance at the .001 level). The probability of $\chi^2 \geq 137.208$ through sampling error is less than one chance in 10,000, in this situation. Figure H1 indicates that the relationship is linear and the support statistics with the scattergram confirm the above assertion about the strength of the association. The correlation of REACTION with PERFORMS is .8992. With N = 250, t_{n-2} approximates the z_p transformation, requiring a t value of 3.291 for significance at the .001 level. The t value for $r = .8992$ is 32.3641, indicating that the observed correlation is highly significant at $p < .001$.

Other facts about the correlation of affective reaction scores with those of entrepreneurial performance require statement and brief discussion. The correlation co-efficient may be used to demonstrate the proportion of the total variance in the dependent variable (in this case, entrepreneurial performance) which is associated with, predictable from, or explained from, knowledge of the independent variable (affective reaction, in this hypothesis). The variance or co-efficient of determination, for these data, (r^2 = .8086) indicates that more than 80% of the variance in small business performance scores is associated with variation in affective reaction scores.

As the correlation co-efficient may be used to predict or estimate a score on an unknown variable from knowledge of a score on a known variable, it is of interest to be able to assess the degree of accuracy of such prediction. The greater the correlation between two variables the more accurate the prediction possible with the regression equation. The standard error of estimate (SEE) is a measure of the degree of dispersion of actual values of a dependent variable around the regression line used for estimating that variable. For the data in Figure H1, the calculated SEE is 7.6925 which represents the standard deviation of the Y values (scores on small business performance) about the regression line Y = -11.1123 + .7606X. If multiple predictions of small business performance were made from a knowledge of each individual's affective reaction scores, one could be confident that 68.2% of the actual performance scores would fall within the performance mean score (for any given affective reaction score) $\pm$ 7.6925, and that 95.45% of actual scores would fall within that mean $\pm$ 15.3850. This SEE measure represents 14.25% of the total range of

business performance scores.

Within the sample employed in this study, those small business owner/ managers who indicated that they were able to cope with entrepreneurial role stress generally produced a performance superior to those owner/ managers who reported being subjected to more severe stress. The strength of the measured relationship indicates that affective reaction is an extremely significant correlate of the quality of entrepreneurial effectiveness.

On the basis of the data discussed above and shown in Table G1 and Figure H1, and the statistics calculated therefrom, this hypothesis is accepted.

Having established that the quality of entrepreneurial performance and affective reaction are significantly associated, the question then arises - What are the correlates of auspicious affective reaction?

PROPOSITION B

A significant influence on an entrepreneur's affective reaction, and, thereby on his business performance, derives from particular aspects of his personality.

For the purpose of this study certain dimensions of personality have been isolated, analysed and tested for their possible association with both the key independent variable (affective reaction) and the dependent variable. All the aspects of personality thus selected were

hypothesised to have significant association with both affective reaction and small business/entrepreneurial performance, and such hypotheses are supported by the data presented in this study and discussed on the following pages (Hypotheses 2 to 4(b) inclusive). The degree of statistical association thus determined indicates that favourable affective reaction to entrepreneurial role stress is significantly related to the possession of certain personality traits. While it is accepted that the chain of causal inference may be somewhat tenuous, it is nevertheless suggested that the personality features incorporated in this study do influence the mental and emotional state of individuals, and these states affect both the capacity and propensity to react favourably and constructively to role stress. This suggested causal relationship is made somewhat more plausible by the significance of the measured correlations.

The proposition is accepted.

Hypothesis 2

The higher an entrepreneur's level of achievement motivation, the more favourable will be his affective reaction to the stress inherent in his chosen role.

Crosstabulation of scores on achievement motivation and affective reaction (Table G2) indicates a significant relationship. Although this study has not dissected n-Achievement for the purpose of empirical analysis, the author strongly suspects certain components of achievement motivation to be causally related to the ability and inclination to

cope with stressful situations.

The statistic associated with Table G2, indicating the likelihood of statistical dependence of the two variables, is $\chi^2 = 351.5221$ (with 90 df), by which the null hypothesis that the two variables are independent is rejected at $p < .001$. Affective reaction and n-Achievement scores correlated .8419 (Figure H2), such co-efficient being highly significant ($p < .001$). From these data $r^2 = .7088$, indicative that over 70% of the variance in affective reaction scores is associated with variance in n-Achievement scores, unexplained variance being slightly less than 30%. The SEE is 11.2181, which is 16.50% of the range of affective reaction scores.

These data support the hypothesis that one's general level of achievement motivation is significantly related to his capacity/propensity to cope with entrepreneurial role stress. The research literature abounds with evidence and assertions about the relationship of n-Achievement and economic development, the proposed intervening variable being successful entrepreneurial activity. It is the author's contention that a further intervening variable may have been identified by this study. The level of achievement motivation and the quality of entrepreneurial activity are evidently both associated with the individual's affective reaction to work-role stress. Therein lies justification for the inclusion of affective reaction as the key predictor variable in this study.

From the data compiled in this study, and the statistics calculated therefrom, the hypothesis is accepted.

Hypothesis 3

Entrepreneurs with predominantly aggressive or detached interpersonal orientation will have a more favourable affective reaction to role stress than those with other predominant interpersonal response patterns.

As evidenced from the data relevant to Hypotheses 3(a) and 3(c) the correlations of aggressive and detached interpersonal response scores with affective reaction scores are .7724 and .5530 respectively. Compliant interpersonal response orientation scores and affective reaction scores are negatively correlated at -.4446. All three co-efficients are highly significant at $p < .001$.

On the basis of this evidence, individuals who have developed and predominantly use aggressive or detached modes of interpersonal response tend to have more capacity and inclination to operate effectively in the entrepreneurial role under conditions of psychological stress.

Atkinson (1957) and McClelland (1961) have implicitly recognised that high achievers (associated with entrepreneurial tendencies) have both aggressive and detached orientations, rather than compliant. The individual with predominantly compliant orientation may prefer to rise within the organisational hierarchy as "the organisation man" (Whyte, 1956). These propositions are supported by the data from this study. Mean scores for compliant, aggressive and detached interpersonal orientations are 36.0120, 38.2400 and 37.1640 respectively, from common scales. With t tests, the difference between the aggressive and compliant means is significant at $p < .005$; between the aggressive and detached means, significant at $p < .1$ (or