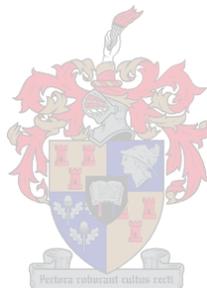


**THE ALIGNMENT OF MIND STYLE
WITH FOUR CATEGORIES OF REGISTRATION IN
SOUTH AFRICAN PSYCHOLOGY**

CHARLENE RENÉ REINECKE



Thesis presented in fulfilment of the requirements for
the degree of Master in Arts and Philosophy (Psychology)
at the University of Stellenbosch

Supervisor: Prof. T. W. B. van der Westhuysen

November 2001

STATEMENT

I, the undersigned, hereby declare that the work contained in this thesis is my own original work, and that I have not previously in its entirety or in part submitted it at any university for a degree.

SUMMARY

This study explores the possible alignment between mind style and four specialization categories within the profession of psychology. The Mind Style model of Anthony F. Gregorc, serving as a key to better understand an individual's constitution, constitutes the theoretical underpinning of the investigation. The model divides specific perceptual and ordering qualities into four mediation channels or mind styles: Concrete Sequential (CS), Abstract Sequential (AS), Abstract Random (AR), and Concrete Random (CR).

The Gregorc Style Delineator, an instrument measuring the perceptual qualities of concreteness and abstractness, and the ordering qualities of sequentialness and randomness, was administered to 68 students registered for the Clinical, Counselling, Educational, and Industrial Psychology masters study programmes at the University of Stellenbosch.

The primary research objectives included determining the mind styles of the four specialization groups, and ascertaining whether the four groups displayed distinguishing dominant mind style preferences. Secondary research objectives explored the relationships between and interactions with the words of the Gregorc Style Delineator and the four specialization groups. The reasons of the four groups for studying their chosen specialization fields were also noted. The data was analysed using the SPSS.

Findings revealed no significant differences between the mind styles of the four groups. The Abstract Random mind style was found to be the dominant mind style for all four of the specialization groups. The secondary research objectives similarly found no significant evidence in support of clear descriptive delineations between the four specialization groups. Regarding mind style, a perceptual-ordering aspect of personality, it would thus appear that psychologists-in-training, and therefore psychologists, are undifferentiated. On the whole the results of this study indicate that psychologists in various registration categories are more similar than different. Recommendations were made for further study and research.

OPSOMMING

Hierdie studie stel ondersoek in na die moontlike verwantskap tussen verstandstyl en vier spesialisingskategorieë binne die sielkunde professie. Die 'Mind Style' model van Anthony F. Gregorc, wat dien as 'n sleutel na 'n betere insig betreffende 'n persoon se samestelling, vorm die teoretiese ondersteuning van die ondersoek. Die model verdeel bepaalde perseptuele- en ordeningskwaliteite in vier bemiddelingskanale of verstandstyle: Konkreet-Opeenvolgend (CS), Abstrak-Opeenvolgend (AS), Abstrak-Lukraak (AR), en Konkreet-Lukraak (CR).

Die Gregorc Style Delineator, 'n instrument wat konkrete en abstrakte perseptuele eienskappe, en opeenvolgende en lukrake ordeningseienskappe meet, is toegepas op 68 studente wat geregistreer was in die Kliniese, Voorligting, Opvoedkundige, en Industriële Sielkunde meesters studieprogramme aan die Universiteit van Stellenbosch.

Primêre navorsingsdoelstellings het die vasstelling van die verstandstyle vir die vier groepe ingesluit, asook die bepaling van moontlike onderskeidende dominante verstandstyl voorkeure vir elke groep. Sekondêre navorsingsdoelstellings het die verhoudings en interaksies van die woorde van die Gregorc Style Delineator met die vier spesialisingsgroepe ondersoek. Die steekproef se redes vir die studie van hul gekose spesialisingsvelde is ook genoteer. Data-analise is gedoen met behulp van die SPSS.

Bevindings het geen beduidende verskille tussen die verstandstyle van die vier groepe aangedui nie. Die Abstrak-Lukraak verstandstyl was geïdentifiseer as die dominante verstandstyl vir al vier spesialisingsgroepe. Die sekondêre navorsingsdoelstellings het eweneens geen beduidende bewys bevind ter ondersteuning van 'n duidelik omskrywende deliniasie tussen die vier spesialisingsgroepe nie. Ten opsigte van verstandstyl, 'n perseptueel-ordenings aspek van persoonlikheid, wil dit dus voorkom of sielkundiges-in-opleiding, en dus sielkundiges, ongedifferensieerd is betreffende verstandstyl. In die geheel dui die resultate van die huidige studie aan dat sielkundiges van verskeie registrasiekategorieë meer eenders as verskillend is. Aanbevelings is gemaak ten opsigte van verdere studie en navorsing.

ACKNOWLEDGEMENTS

I would like to express my very deepest appreciation to the following:

- God, through whom all things are possible.
- Professor Bodley van der Westhuysen, for his graciousness, patience and invaluable guidance throughout the long journey.
- Marieanna le Roux, for the professional statistical service and the personal empathy and concern.
- Zane, who put wings on the dream and energized and nurtured it all the way through.
- YoungHee, who saw and encouraged in me that which I could not see.
- Dr. Penny Webster, my mentor, for her unfailing support and wisdom.
- The Administration of Helderberg College, for their financial support and patient understanding of a reality.
- My colleagues in the Arts & Sciences Department - Bob, Carol and Phillip – for your daily encouragement and perspectives of focus.
- Jaques, for long-standing caring concern and a time-out haven.
- Dion, for the constant reminders of the ultimate attainment of the goal.
- Liesel, for the enthusiastic and interested encouragement.
- John, for the supportive quotes and the revitalizing nature excursions.
- Ingrid, for the perpetual long-distance connectedness.
- Venette, for many concerned years.
- Conrad, for the technical support and the gift of time.

And finally - my family, for always believing in me and being proud of me.

Karin and Derek, for a port of calm.

TABLE OF CONTENTS

1.	INTRODUCTION	
1.1	Background of and motivation for the study	1
1.2	Purpose of this study	4
1.3	Objectives	4
1.4	Theoretical framework	5
1.5	Definition of terms	6
1.6	Organization of study	8
2.	LITERATURE SURVEY	
2.1	Introduction	10
2.1.1	Carl Jung	10
2.1.2	David Kolb	13
2.2	Anthony Gregorc	16
2.2.1	Implications for learning and teaching: A new definition for individual	17
2.2.2	Learning/teaching styles: Potent forces behind them	18
2.2.3	Learning/teaching styles: Their nature and effects	18
2.2.4	An adult's guide to style	19
2.2.5	Style as a symptom: Phenomenological perspective	23
2.2.6	Inside styles: Beyond the basics	25
2.2.7	The Mind Styles Model: Theory, principles and practice	28
2.3	Gregorc in literature	30
2.3.1	Theories and models	30
2.3.2	Research and findings	34
2.4	Theories of occupational choice and career development	37
2.4.1	Introduction	37
2.4.2	General theories	38
2.4.3	Dispositional and person-environment approaches	39
2.4.4	Cognitive style and occupational choice	40
2.4.5	Personality-centered studies of style	42
2.5	Psychology as discipline and profession	44
2.5.1	Introduction	44
2.5.2	The nature of psychology	46

2.5.3	Characteristics of psychologists	50
2.6	South African psychology	56
2.6.1	Introduction	56
2.6.2	An applied overview	57
2.6.3	The efficacy of South African psychology	59
2.7	Summary	63
3.	RESEARCH METHODOLOGY	
3.1	Introduction	64
3.2	Research design	64
3.3	Research problems and questions	64
3.4	Sample	65
3.5	Instrumentation	65
3.5.1	Biographical and Information Questionnaire	65
3.5.2	The Gregorc Style Delineator:	66
3.5.2.1	Purpose	66
3.5.2.2	History	66
3.5.2.3	Development	66
3.5.2.4	Instrument design	68
i.	The quaternary design	68
ii.	The format	68
iii.	Selection of words	69
iv.	Scoring	69
3.5.2.5	Validity and predictive validity	70
3.5.2.6	Reliability	71
3.5.2.7	The Gregorc Style Delineator: Comments and critique	72
3.5.2.8	Choice of measurement instrument	73
3.6	Procedure	75
3.7	Statistical techniques used	76
3.8	Summary	76
4.	RESULTS	
4.1	Introduction	77
4.2	Response characteristics	77
4.3	Biographic information	78

4.4	Mind styles	82
4.4.1	Dominant mind styles	82
4.4.2	Bimodal mind styles	84
4.5	Mean ranks of the Gregorc Style Delineator words and the four specialization groups	85
4.6	Correlation between Gregorc Style Delineator words and mind style	87
4.7	Choice of specialization field of study	89
4.7.1	Primary reasons of choice	89
4.7.2	Reasons for not pursuing preferred course of study	90
5.	DISCUSSION AND CONCLUSION	
5.1	Introduction	92
5.2	Discussion of findings	92
5.2.1	Dominant mind styles	92
5.2.2	Relationship between the Gregorc Style Delineator words and the four specialization groups	93
5.2.3	Correlations between Gregorc Style Delineator words and mind styles	94
5.2.3	Choice of specialization field of study	95
5.3	Delimitations of study	96
5.4	Conclusion and recommendations	96
	REFERENCES	101
	APPENDIXES	
APPENDIX 1	Brief Synopsis of the Style Characteristics of the Four Mind Styles	111
APPENDIX 2	Biographical and Information Questionnaire	112
APPENDIX 3	Gregorc Style Delineator and Scoring Sheet	116
APPENDIX 4.1	Covering letter	119
APPENDIX 4.2	Follow-up letter 1	120
APPENDIX 4.3	Follow-up letter 2	121

LIST OF TABLES

TABLE 1	Response Rate and Spoilt Rate of Questionnaires	77
TABLE 2	Specialization Categories and Year of Study (N = 68)	78
TABLE 3	Gender	78
TABLE 4	Age Distribution	79
TABLE 5	Marital Status	79
TABLE 6	Nationality	80
TABLE 7	Home Language	80
TABLE 8	Qualifications	81
TABLE 9	Work Experience and Training	81
TABLE 10	Frequency Distribution of Dominant Mind Styles according to Specialization Course and Year of Study	82
TABLE 11	Mean Scores of the Mind Styles of the Four Specialization Groups	83
TABLE 12	Kruskal-Wallis Results for the Mind Style Categories	84
TABLE 13	Frequency Distribution of Dominant Mind Styles with Regard to Pure Style and Bimodal Mind Style (N = 68)	85
TABLE 14	Kruskal-Wallis Test of Mean Rank Scores	86
TABLE 15	Pearson Correlations between Gregorc Style Delineator Words and Mind Styles	88
TABLE 16	Average Percentages of the Primary Reasons of the Four Specialization Groups for Choosing their Particular Specialization Field (N = 68)	89
TABLE 17	Course of Study and Preferred Course of Study	90
TABLE 18	Reasons for not Pursuing Preferred Specialization Course of Study (N = 8)	91

LIST OF FIGURES

FIGURE 1	Kolb's Inventory of Learning Styles	14
FIGURE 2	The Style Delineator Model	21
FIGURE 3	Distribution of the Mean Scores of the Mind Styles of the Four Specialization Groups	83

CHAPTER ONE

INTRODUCTION

1.1 Background of and motivation for study

For many decades, perhaps dating back to the beginning of psychology as an academic discipline, theories that deliberate *style*, whether it be learning style, cognitive style or thinking style, have been the concern of educators and psychologists. O'Brien (1994) however, comments that as an area of inquiry, " ... styles remain an emerging one replete with unanswered questions and unresolved debates" (p. 11).

The Mind Styles theory of Anthony F. Gregorc is one of the more recent contributions to this area of debate. This theory evolved from Gregorc's interest and work in learning and teaching styles begun in 1970, and was officially termed 'Mind Styles' in 1984 when his research started focusing exclusively on the mind and psyche as causative factors for style (Butler, 1988; Gregorc, 1985; 1998). For Gregorc, mind style is the external manifestation of the mind and psyche - the behaviours, characteristics, mannerisms and products that provide clear clues as to how individuals approach the world.

Correspondingly, theorists in the field of occupational choice and career development have pondered the question of what motivates an individual to pursue a specific occupation. It was only a matter of time before these researchers started investigating a possible *relatedness* between style and vocational preference (Messick, 1984), with some stating boldly: "The results of this study, then, support the contention that individuals are inclined to those academic/vocational fields that are consistent with their ... style" (Torbit, 1981, p. 195).

A further question logically arose: could *style* be even more specifically related to an individual's explicit choice of a field of academic study, where such a choice indicated the individual's resolve to pursue a particular specialization field within their discipline? Gregorc (1985) suggests that individuals' mind styles may instinctively attract them to a specific occupation because of a natural *fit* or *match*, resulting in the selection of " ... academic and vocational fields consistent with their own ... styles" (O'Brien, 1991, p. 493). Concerning this research topic, Seidel and England (1999) note the " ... limited research on how ... style is related to students' choice of study" (p. 862).

Hardy (1990) observes: "At certain junctures in our lives we are confronted with the need to identify our gifts and choose an occupation; and an occupation can provide us with the

concrete opportunity to employ our gifts in the service of our neighbour ..." (p. 81). This thesis targets the profession of psychology, the *helping* profession - a profession which is most certainly concerned with the welfare and well-being of its 'neighbours'. However, the profession of psychology subsumes a number of specialization fields, the fields in South African psychology being clinical, counselling, educational, industrial, and academic and research psychology. These registration categories purportedly represent clearly delineated content and work areas. If this is true, it would stand to reason therefore that individuals pursuing any of these specialization fields do so with specific intentions; they have a concept of what the profession is, and have definite career directions in mind.

Some researchers have identified specific values which may be attributed to psychology students' choice of vocation by using the predispositional model, which suggests that "... people with specific personalities, values, beliefs, needs, ..., are likely to choose certain jobs ..." (Furnham, 1988, p. 614), while others have investigated the entry motives of students choosing psychology as a career (Solas, 1996). This thesis would like to put forward the possibility that mind style could be one of these predispositional, 'self-selecting' factors or motivations.

A further motivational question touches the core of an ever-present debate in psychology, directing attention to its very foundations: is psychology a unified discipline if so many specializations exist? Are these specializations warranted? Specialization implies differences between the various sub-disciplines - fragmentation, segmentation - which within a profession, refers to the fact that "... sub-groups conform ... around a specific identity" (Louw, 1990, p. 43). Literature abounds in support of the belief in 'a world of differences among psychologists': "I shall suggest that the philosophical differences among us are related to individual differences in personality factors and cognitive style ..." (Conway, 1992, p. 1).

This belief necessitates the existence of differentiating characteristics between the various specialization fields, or "... characteristics that would descriptively distinguish various subgroups within the profession" (Youniss, Lorr, & Stefic, 1985, p. 581). According to Matarazzo (1987), the different curriculums in graduate psychology perpetuate the belief that specialities in psychology indeed exist, and is accepted as such by the larger society. However, what if an alternative reality subsists - that psychologists, even in their specialization groupings, *are more similar than different*? Super and Bohn (1970) noted more than three decades ago already that "... groups of persons in similar occupations did have some similar characteristics and that there was some stability to these characteristics" (p. 103). This thesis will attempt to address this

question in the following applied form: *does mind style significantly differentiate between various registration categories in the profession of psychology?*

The implications for psychology are sober if indeed “ ... there exist no bona fide specialities in psychology today” (Matarazzo, 1987, p. 900); for the whole system of psychology rests on ‘partitioning’ and ‘division’. Given the mission of psychology - the helping profession - what are the effects on its relevance and efficacy in the light of the ‘diversity versus unity’ debate within its ranks? The accuracy of the following statement must thus be questioned:

By now, a large literature has accumulated on personality characteristics, interest patterns, and cognitive styles of psychologists. With impressive consistency, the studies show that the constellations of vocational interest, emotional disposition, and cognitive style displayed by researchers and practitioners in psychology are different. (Frank, as cited in Peterson, 1997, p. 145)

The following observation by Frank (1984) remains sadly true: “This epistemological dichotomy became a crucial issue for psychology and has produced a rift between psychologists that periodically erupts professionally” (p. 426). Psychology, past and present, has had a powerful, pervasive influence: “ ..., in terms of general culture, there is no question but that psychology has increasingly affected many of the ways in which we think and speak about the world and ourselves” (Sewell, as cited in Richards, 1997, p. 28). Ironically then, psychologists can still reach no agreement concerning their professional identity, on how one defines what it means to be a ‘psychologist’, insisting on categorical, specialized dissimilitude.

“The relevance and thus the future of psychology lie in its capacity to provide more and more meaningful answers to questions about human behaviour, experience, and life circumstances which interest us as human beings” (Olds, as cited in Richards, 1997, p. 29). It is the opinion of this author that before this lofty objective can be attained - before ‘success’ can be predicted for psychology, fragmentation must be transformed into unity - the possibility of similitude must be admitted.

Specialized vocational preference is mediated by many considerations, “ ... some internal and some external to the person” (Solas, 1996, p. 144). It is suggested that *mind style*, being an internal consideration, could be one of these mediating factors. Youniss et al. (1985) observe that psychologists do not display much interest in studying themselves through the means of formal research, thereby creating a “ ... dearth of information concerning personality or motivational variables as they might reveal differentiating information about groups of psychologists with varying professional identifications” (p. 581).

It is the intent of this thesis to make a contribution towards a better understanding of this research topic.

1.2 Purpose of this study

This study was designed to investigate the possibility of alignment occurring between the Gregorc mind styles and some categories of study and of registration in South African psychology. These categories are clinical, counselling, educational and industrial psychology. Psychology masters students, registered in these respective four courses at the University of Stellenbosch, were employed as sample. The study was based on the premise that certain systematic patterns may be present, and that through identifying such patterns, understanding may be enhanced concerning the potential differences or similarities between the four categories of registration.

The sub-goals include brief investigations into the following related issues: salient aspects arising from the primary measurement instrument utilized in this study; and reasons concerning the choice of specialization areas of study.

1.3 Objectives

This study will attempt to address the following research objectives:

1. To determine the mind styles of psychology masters students in each of the following specialization areas of study and categories of registration in South African psychology: clinical, counselling, educational, and industrial psychology.
2. To ascertain whether the four groups display distinguishing dominant mind style preferences, which can then be accepted as being characteristic and descriptive, and therefore representative of the respective specialization areas of study and categories of registration.
3. To establish whether any relationship exists between the words of the Gregorc Style Delineator and the four specialization groups.
4. To explore whether the words of the Gregorc Style Delineator significantly interact with the four specialization groups.
5. To note the reported reasons of the four groups for studying their chosen field.

1.4 Theoretical framework

The major theoretical underpinning for this study is found in the contribution of the Mind Styles model of Anthony Gregorc. Gregorc's theory is based, in part, on the works of Carl Jung and David Kolb.

Jung's personality typology is derived from three dimensions: a basic attitude dimension comprised of extraversion and introversion; a function dimension of sensation-intuition; and a function dimension of thinking-feeling (Miller, 1991).

Kolb (1984) recognizes two orthogonal (comprised of right angles), adaptive orientations, namely prehension and transformation, both dimensions reflecting a cognitive emphasis. De Bello (1990) summarizes Kolb's four-stage cycle as follows: Immediate concrete experience serves as the basis for observation and reflection. These observations are then assimilated into theory from which new implications for action may be deduced. These implications, in turn, serve as guides in acting to create new experiences. A cycle has thus evolved, with four dominant types of learning styles emerging: converger, diverger, assimilator, and accommodator.

Gregorc's Mind Styles model derives from phenomenological research in the classroom. Fundamental to the development of the characteristics of style is the belief that individuals possess internal, subjective patterns of learning that include general qualities held in common by others, as well as specific physical, emotional, and mental qualities that are unique. Jonassen and Grabowski (1993), in summarizing the work of Gregorc and Ward (1977), note that the concept of mind styles was developed to better understand both the common and unique patterns of learning and, with this new understanding, to help individuals interact more successfully with the outside world.

The Mediation Ability Theory forms the basis of Gregorc's notion of *style* (1982a; 1985; 1998), stating that the human mind has channels through which it receives and expresses information most efficiently and effectively. Through the study of the concept of duality in perception and ordering, the bipolar styles of abstract / concrete, and sequential / random were identified. It was found that these sets of dualities joined together to form the following four modes or nomenclatures, as measured by the Gregorc Style Delineator: Abstract Sequential (AS); Abstract Random (AR); Concrete Sequential (CS); and Concrete Random (CR). While every individual may exhibit all four styles to some degree, most exhibit a dominant inclination toward only one or two.

The reasons for the selection of Gregorc's theory as the foundation for this study include

the following: it represents a historical perspective, evidencing theoretical specification - the positing of a reasonably complete, well-specified, and internally consistent theory of styles that connects with existent psychological theory; demonstrates acceptable levels of internal and external validity; has influenced others; is known in the field; and possesses heuristic generativity, or, is research oriented - producing further psychological research and practical application (De Bello, 1990; Sternberg & Grigorenko, 1997).

1.5 Definition of terms

Terms commonly used throughout this study as it relates to Gregorc's theory are defined as follows:

Psyche

A synonym for the Self or soul.

Self

A synonym for soul or psyche.

self

A synonym for ego; the conscious or rational part of the soul; a 'lens' on the soul or 'eye' (I) of the soul, linking the inner and outer worlds.

Mind

A meta-physical instrument which is used by the ego and Self for building thought as well as creating reality. It interacts with environmental stimuli and directs a number of qualities, such as the intellect. It produces various time/space realities for the expression of constitutional needs.

Style

The outward product or appearance of the mind and psyche - the outer behaviours, characteristics, mannerisms and direct results reflective of the qualities of the mind and calibre of the decisions made. These outer, visible style characteristics thus provide clues as to the inner invisible nature and capacity of an individual's psychological and mental make-up, therefore bringing forth the individual's psychic constitution (blueprint) into physical existence.

ORGANON System

Gregorc's viewpoint on how and why the human mind functions and manifests itself through the human personality, resting on the following philosophical principle: The primary purpose of life is to realize and actualize one's individuality, spirituality, and collective humanness.

Energic Model of Styles (EMS)

A subset of the ORGANON System. A theoretical construct designed to help individuals artificially divide experiences into temporary intellectual compartments in order to study various qualities of the mind, or, the means of describing specific reality-creating functions of our minds.

Mediation theory

This theory states that the mind has mentally qualitative channels through which it receives and expresses data most effectively and efficiently. The channels create an individual's reality.

Quality of concreteness

Aggregated energy which disposes the mind to grasp and mentally register data through the direct use and application of the physical senses.

Quality of abstractness

Aggregated energy which disposes the mind to grasp, conceive and mentally visualize data through the faculty of the intellect. Also disposes the mind to emotionally and intuitively register and deal with inner and subjective thoughts, ideas, concepts, feelings, drives and spiritual experiences.

Quality of Sequentialness

Aggregated energy which disposes the mind to grasp, organize and produce data in a linear, step-by-step, methodical and predetermined manner.

Quality of Randomness

Aggregated energy which disposes the mind to grasp, produce and organize data in a non-linear, galloping, chunk-like and multifarious manner.

CS/AS/AR/CR

Specific nomenclature for the four perceptual / ordering channels derived from Gregorc's research. CS = Concrete Sequential orientation; AS = Abstract Sequential orientation; AR = Abstract Random orientation; and CR = Concrete Random orientation.

Concrete Sequential style (CS)

Attention is focused on concrete reality and physical objects and ideas are validated through the senses.

Abstract Sequential style (AS)

Logical and systematic thinking is preferred, and information validated through preset formulas.

Abstract Random style (AR)

Attention is focused on the world of feeling and emotion, and ideas are validated through inner guidance.

Concrete Random style (CR)

Intuitive and instinctive thinking is preferred, and personal proof is relied upon for the validation of ideas, with outside authority rarely accepted.

Gregorc Style Delineator

An instrument measuring the perceptual qualities of concreteness and abstractness, and the ordering qualities of sequentialness and randomness in their compounded forms of Concrete Sequential (CS), Abstract Sequential (AS), Abstract Random (AR), and Concrete Random (CR). These compounds yield four dimensions of space and time within which we establish reality. The instrument uses a psycholinguistic approach and an association testing with antinomies.

Mind Styles Model

A model serving as a key or matrix to better understand an individual's constitution or the innate composition of purpose, needs, aspirations, abilities, capacities, memory and will in potential form. The model was designed to specifically prompt awareness, reason, caution, humility, moral commitment, and change in a timely manner.

Mind styles

Lenses by which, and a window through which individuals view and experience the world - the outer reflection of the mind's signature, manifest in some specific perceptual and ordering qualities which divide into four distinct mediation channels: Concrete Sequential (CS); Abstract Sequential (AS); Abstract Random (AR), and Concrete Random (CR)(Gregorc, 1985, 1998; Sternberg, 1997).

1.6 Organization of study

This study is composed of five chapters.

Chapter 1 has presented an introductory overview of the study: the background and motivation for the study, purpose of the study, objectives, and the theoretical framework of the study. It has included, as well, the definition of key terms.

Chapter 2 provides a review of conceptual literature as well as current research in the field of mind style, theories of occupational choice and career development, psychology as discipline and profession, and the current nature of South African psychology as these pertain to

the emphasis of this study.

Chapter 3 concerns the methodology and the type of research, including the sample and its selection, research problems and questions, instrumentation, procedure, and statistical techniques used for data analysis.

Chapter 4 presents the results, under the following subheadings: response characteristics; biographic information; mind styles; relationship between the Gregorc Style Delineator words and the specialization groups; correlation between the Gregorc Style Delineator words and mind styles; and choice of specialization field of study.

Chapter 5 contains a discussion of the findings, the delimitations of the study, and presents concluding remarks and recommendations for further study.

Finally the appendixes include a brief synopsis of the style characteristics of the four mind styles, copies of the Biographical and Information Questionnaire and the Gregorc Style Delineator and scoring sheet, as well as copies of the covering letter and subsequent follow-up letters.

CHAPTER TWO

LITERATURE SURVEY

2.1 Introduction

Anthony Gregorc's theory is based in part, and builds on the works of both Carl Jung and David Kolb. Gregorc (1985) was fascinated with Carl Jung's seminal and extraordinarily gifted thoughts, and impressed with David Kolb's theory and approach to instrument design. In order to understand the foundations of Gregorc's Mind Style theory, a summary of the works of each of these theorists follows.

After a full discussion of Gregorc's theory, three supplementary theoretical sections are presented in order to clarify the applied context of this study. The section on 'theories of occupational choice and career development' provides a brief overview concerning the presence of style and its role in vocational preference and choice. 'Psychology as discipline and profession' summarizes the current standing of psychology internationally, and raises the issue of whether psychologists exhibit a unified group identity, or specialized characteristics which identify them with a particular registration category. Finally, the section on South African psychology offers a broad survey regarding the local status of the relevance and efficiency of the discipline as profession, with special reference to the possible impact of style on the graduate selection process.

2.1.1 Carl Jung

Jung's personality theory is commonly used as a conceptual basis for certain styles, either directly or indirectly as a "source of insights about individual differences" (Miller, 1991, p. 218). Jung gained these insights working from his own clinical observations and from the work of others dating back to the second century. He then "...formulated a psychological typology which is intended to characterize the fundamental styles we use to deal with our life-encounters ..." (Bargar & Hoover, 1984, p. 56). Richter (1992) points out that Jung's typology can be applied to an understanding of both the individual personality and thinking as an integrated process. The strategies people employ in their approach to the environment was of interest to Jung, and his theory is illustrative of the link between personality and thinking or problem solving style.

Jung (1933) became convinced in the course of his work that among the many individual differences in human psychology there exists typical distinctions, with two types emerging very clearly. The destinies of an individual are conditioned by the objects of his interest, as well as by his own inner self, his subject. Since people prefer one side to the other, they are therefore

naturally disposed to understanding things in the sense of their own type.

These two types were termed the *introversion* and the *extraversion* types. Jung believed that each human being possesses both mechanisms as an expression of his natural life-rhythm. However, external circumstances and internal dispositions frequently favour one mechanism, which causes a predominance of that mechanism. This then results in a habitual attitude, and a so-called *type* is produced. It is to be stressed that although each style has its advantages, none is inherently superior to the other.

Introversion is described as being indicative of those who are more inwardly directed with their interest. The introvert, according to Jung, is an individual who thinks, feels and acts in a way that clearly demonstrates that the subject is the prime motivating factor. The introvert may appear more withdrawn or shy about dealing with environmental encounters. In contrast, extraversion is indicative of those who are outgoing with their interest, thinking, feeling and acting in relation to the object. This individual seems to have an overt supply of energy and appears anything but shy about dealing with environmental encounters (Bargar & Hoover, 1984, p. 56).

After identifying the two attitudes of introversion and extraversion, Jung further distinguished between four basic functions: two perception functions, *intuition* and *sensing*; and two judgement functions, *thinking* and *feeling*. If one of these functions habitually prevails, a corresponding type results. Intuition points to the possibilities of the 'whence and whither' that lie within the immediate facts. Intuitives therefore tend to perceive information holistically, often losing sight of details in favour of seeing a world of possible meanings. Sensing describes those who tend to deal realistically, observantly and precisely with tasks. Sensation establishes what is actually given. Thinking enables people to recognize meaning in a logical, analytical and impersonal way. The feeling mode tends to be oriented by values rather than logic (Bargar & Hoover, 1984, p. 57; Jung, 1933, p. 107). Every one of these four basic functions can moreover be introverted or extraverted according to their relationship to the object. Jung summarizes his conception of psychological types as follows:

The total result of my work in this field up to the present is the presentation of two general types covering the attitudes which I call extraversion-introversion. Besides these, I have worked out a fourfold classification corresponding to the functions of thinking, feeling, sensation and intuition. Each of these functions varies according to the general attitude, and thus eight variants are produced. (1933, p. 107)

The eight psychological types that emerge are as follows:

- i. Introverted intuiting - more concerned with the unconscious than with everyday reality;
- ii. Introverted sensing - outwardly detached, expressing themselves in aesthetic pursuits;
- iii. Introverted thinking - more interested in ideas than in people;
- iv. Introverted feeling - reserved, undemonstrative, yet capable of deep emotion;
- v. Extraverted intuiting - creative, able to motivate others and to seize opportunities;
- vi. Extraverted sensing - outgoing, pleasure-seeking, adaptable;
- vii. Extraverted thinking - logical, objective, dogmatic;
- viii. Extraverted feeling - emotional, sensitive, sociable (Schultz & Schultz, 1998, p. 91).

Jung valued his type theory for the objective reason that it offered a system of comparison and orientation. Psychological type is reflected in what we prefer to do and how we prefer to do it. Fourqurean, Meisgeier and Swank (1990) argue that Carl Jung's conceptualization of psychological type can be used to classify individuals by the way they prefer to process information and make decisions. Jung believed that individuals develop preferred modes of interaction and of receiving information and responding to it. Individuals of varying types tend to be interested in different subjects. Bargar and Hoover (1984) clearly state that "...each subject matter area has a particular form which lends itself more or less to the psychological type preferences of each individual" (p. 58). Since there appear to be some definitional similarities, psychological type may be descriptive of what is now called *learning style* or *cognitive style*, and a close conceptual affinity between learning style and psychological type is suggested.

In his work 'Inside styles: Beyond the basics', Gregorc (1985, pp. 28, 30) commented on some commonalities and differences between his model and Jung's typology. Among the commonalities cited are the following: the use of phenomenological methods, and the close examination of adults. Jung attempted to identify the structure and dynamics of the psyche, Gregorc to perceive the anatomy and workings of the psyche and its vehicle, the mind. This makes both Jung and Kolb's models antinomical or 'indivi-duality' models.

Some of the differences between the two theorists include Jung's use of analytical methods in order to comprehend inner activities, concentrating on the functions of the psyche (sensing, thinking, feeling, intuiting), while Gregorc focuses on space and temporality (ordering, or the organization of time). Jung ascribes thought to the intellect, feeling and thinking being used for judgment, whereas Gregorc takes the position that people think in all four dimensions of existence.

2.1.2 David Kolb

Kolb's 'Experiential Learning Model', which serves as the basis for his conceptual framework of learning style, has clearly been influenced by Jung, Dewey, Lewin and Piaget (Miller, 1991; Richter, 1992). Kolb's model especially examines individual learning styles. Hayden and Brown (1985) point out that Kolb was a pioneer in the development of learning style theory, and that his proposed model suggests learning style as being a combined result of heredity, experience, and present environment. He credited his conceptualization of the learning process to Jung's concept of style (Merritt & Marshall, 1984). Kolb thus compares the Jungian theory of psychological types to learning, which involves a holistic process of adaptation to the environment. He sees his theory as an attempt to describe how individuals relate to the world in an integrated manner, or, the interrelatedness of the individual and circumstance, by making use of thinking, feeling, perceiving and behaving.

Experiential learning theory thus provides a model of learning and adaptation processes that are consistent with the structure of human cognition and the stages of human growth and development. The learning process is conceptualized in such a way that differences in individual learning styles and corresponding learning environments can be identified. Green, Snell and Parimanath (1990) point out that Kolb developed his model in the experiential learning framework particularly with the aim to integrate cognitive and socio-emotional factors in learning. Richter (1992) notes that Kolb's experiential learning theory is therefore regarded as important because of the holistic nature thereof. Not only are the characteristics of the individual taken into account in the determination of learning style, but also situational and task demands.

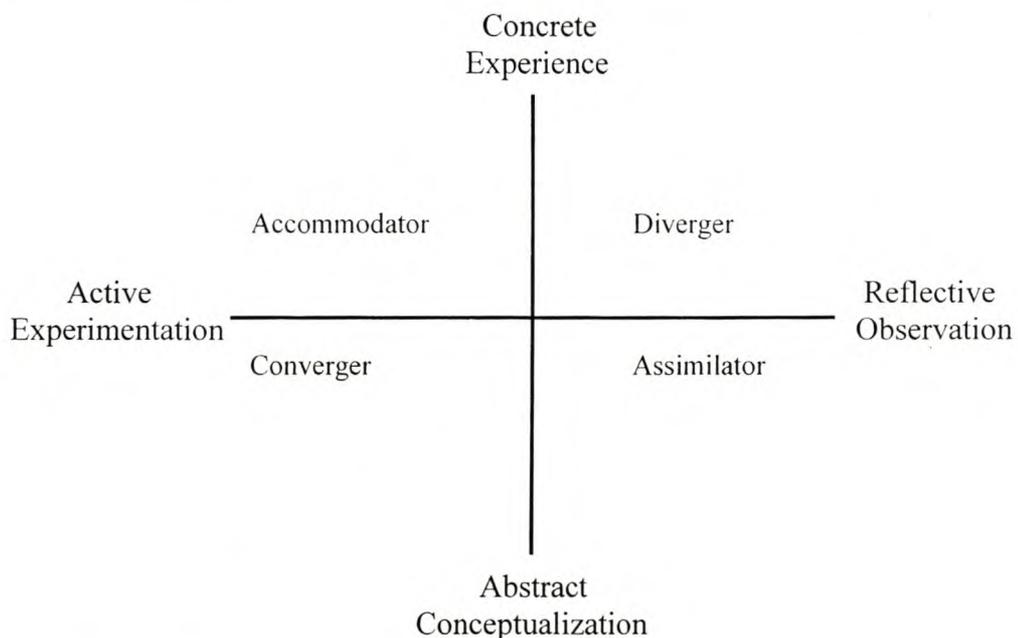
Learning is conceived of as a four-fold taxonomy or a four-stage cycle. Immediate concrete experience is the basis for observation and reflection. Those observations are assimilated into a 'theory' from which new implications for action can be deduced. These implications or hypotheses then serve as guides in acting to create new experiences (Wolfe & Kolb, 1979).

In closely examining Kolb's four-stage learning model, it becomes apparent that learning may require abilities that are polar opposites, and that the learner must therefore continually choose which set of learning abilities will be brought to bear in a specific learning situation. Specifically, "...there are two primary dimensions to the learning process. The first dimension represents the concrete experiencing of events at one end and abstract conceptualization at the other. The other dimension has active experimentation at one extreme and reflective observation at the other" (Wolfe & Kolb, 1979, p. 540). These two orthogonal adaptive orientations are

summarized by Miller (1991, p. 219) as being “prehension (the grasping or taking hold of experience) and transformation (the manipulation of experience)”. Both dimensions reflect a cognitive emphasis.

Kolb's model combines the two bipolar dimensions of cognitive growth, namely the abstract-concrete dimension and the active-reflective dimension. Furnham (1992) notes that the abstract-concrete dimension ranges from dealing with tangible objects to dealing with theoretical objects, while the active-reflective dimension ranges from direct participation on to detached observation. By putting the abstract-concrete and the active-reflective dimensions in orthogonal relation (composed of right angles) to each other, Kolb thus uses these four polar positions to describe the four-stage, cyclical process of learning.

Figure 1 presents a visual depiction of Kolb's process of and model of learning.



(Claxton & Murrell, 1987, p. 28)

Figure 1 Kolb's Inventory of Learning Styles.

According to Sugarman

(E)ach stage of the cycle places different demands on learners. In the concrete experience (CE) stage, they must involve themselves fully, openly, and without bias in new experiences. Then during the reflective observation (RO) stage, they must take a step back and reflect on the experience. During the abstract conceptualization (AC) stage, they must understand these observations and integrate them into logically sound theories. Finally, in the active experimentation

(AE) stage, they must test these theories and use them as bases for decision making and problem solving. (1985, p. 265)

To test his theory, Kolb developed the “Learning Style Inventory” (LSI). The inventory is a self-administered questionnaire consisting of nine word sets. As each set has four words, a total of 36 words results. Respondents rank-order the words within each four-word set based upon how well each word is perceived to characterize their individual learning style. Within each of the nine sets, words are ranked from four (for the word that is most characteristic of the respondent’s style), to one (for the word that is least characteristic). Twenty-four of the 36 words are related to qualities associated with one of the four phases of the experiential learning cycle. These experiential learning phases comprise the four learning style assessment scales used by Kolb to construct the four scales of his instrument. Twelve additional words are incorporated as distractors.

Scores for each scale are obtained by summing the ranks assigned to the six words that comprise a particular scale. Ranks assigned distractor words are ignored. The inventory yields six scores: CE (feeling), RO (watching), AC (thinking), and AE (doing), with two combination scores (AC minus CE; and AE minus RO). These two combination scores indicate an individual’s preferred position on the abstract-concrete dimension and on the reflective-active dimension respectively. Each style is then indicated by locating the point of intersection of the two scores on a matrix (Green, et al., 1990; Merritt & Marshall, 1984; Sugarman, 1985). Norms were developed from a sample of nearly 2 000 adults with varying educational and occupational backgrounds (Wolfe & Kolb, 1979).

Four statistically prevalent types of learning styles are thus identified. These learning style categories or dominant types of learning style are therefore based upon how a person combines preferences in gathering and processing information. *Accommodators* combine CE and AE, and their strengths lie in actually doing things, in carrying out plans and experiments, and involving themselves in new experiences. *Divergers* (CE and RO), have strong imaginative abilities. They enjoy excelling at viewing specific, concrete situations from a number of different perspectives. *Assimilators* (RO and AC), have the ability to create theoretical frameworks and models. They excel in inductive reasoning. *Convergers* (AC and AE), greatest strength lie in the practical application of ideas, or testing theory in practice (De Bello, 1990; Furnham, 1992; 1995). Like Jung, Kolb argues that each style has its strengths and weaknesses and its appropriate place.

A natural outcome of this, and one of the practical applications of the experiential learning

theory, concerns that of career development. As we can extract from Jung's theory a link between the types and certain subject matters, so Kolb notes that stability and change in career paths can be seen as resulting from the interaction between internal personality dynamics and external social forces. "Individuals tend to select themselves into environments that are consistent with their personal characteristics" (Wolfe & Kolb, 1979, p. 552). According to Furnham (1992) later research by Kolb substantiated and clearly linked style to academic major and career choice. Kolb found that individuals with certain cognitive styles gravitated toward academic majors that reinforce those styles.

Gregorc specifically noted some differences between Kolb's work and his own. While Kolb also used the terms abstract/concrete, Gregorc used a different set of dualities for his second determinants, namely active/reflective. The dualities being discrete, they do not form compounds at the cardinal positions (12, 3, 6, and 9 o'clock) (Gregorc, 1985). It is thus clear that these two theorists' models represent different views of reality.

Neither Carl Jung nor David Kolb's models satisfactorily answered Gregorc's questions, or addressed the specific problems he was working on. He therefore developed his own psychologically-based model which will be fully discussed in the next section.

2.2 Anthony Gregorc

Having briefly discussed Carl Jung and David Kolb's work, we now turn to the theoretical focus of this thesis.

Furnham (1995) comments that the idea that individuals have preferred styles of learning, of processing information, and of perceiving is not new in psychology. Consequently, there is a wealth of different conceptualizations going back over seventy years. Gregorc's conceptualization evolved from his interest and work in learning and teaching styles.

Anthony Gregorc first became interested in 'style' in 1968 when he was the principal of the Laboratory School at the University of Illinois. The students and faculty of the school were undoubtedly academically gifted, yet there were some students experiencing difficulty and who were underachieving. The following questions became apparent: "Why aren't these supposedly homogeneously grouped students and faculty members learning easily under extraordinarily positive conditions?" (Gregorc, 1985, p. 37).

Gregorc decided to employ formal observational and inquiry techniques in order to specifically observe student behaviour, requesting explanatory statements from the students whenever certain events were occurring. Using this method he found "... clear patterns of

associations between behaviour that was identifiable and documentable" (1985, p. 37). An infrastructure or frame of reference of needs, values, ways of finding truth and ways of thinking about the world became apparent, suggesting that individuals do not live in similar worlds of reality.

Consequently, Gregorc's initial motive was to find out why children were coming out so unequal when given an equal educational opportunity in a given class, while his second motive was to describe the working of the human mind. The resultant model, or theoretical construct is a blend of various schools of thought or 'psychologies'. This model permits the 'reasonable' prediction of behaviours and the recognition of the mind qualities being used (Gregorc, 1985).

The evolution of this model, the mind style model, will be presented chronologically on the basis of his most important publications.

2.2.1 Implications for learning and teaching: A new definition for individual

Anthony Gregorc can first be traced in literature to 1977 when he, together with Helen Ward, published an article in the NASSP (National Association of Secondary School Principals) Bulletin. In it Gregorc introduced his unique definition of the word *individual*. According to him the secret to understanding this word lies in the two parts of which it is comprised: *indivi* (non-divisible or inseparable), and *dual* (duality). Gregorc argued that the concept of duality appeared throughout Western thought in fields such as philosophy, religion and psychology, but that education failed to distinguish dualities in man when dealing with the processes of learning and teaching.

The lack of identification and subsequent reconciliation of dualities that influence learning and teaching led Gregorc and Ward to conduct research to find dualities, and to observe how they manifest themselves. Hundreds of observations and interviews yielded two sets of dualities.

We found a duality in the use of *abstract* and *concrete* reference points for thinking. Also, an ordering duality emerged in the form of *sequential* and *random* preferences. As we assessed behavior, we found that these sets of dualities joined to form four distinct learning preference patterns or modes. They are: Abstract Sequential (AS), Abstract Random (AR), Concrete Sequential (CS), and Concrete Random (CR). (Gregorc & Ward, 1977, p. 21)

Although every person interviewed revealed use of all four modes, at least 90 percent expressed a definite preference for one or two manners of acquiring information. Four learning preference mode descriptions, or profiles, were offered.

2.2.2 Learning/teaching styles: Potent forces behind them

Some two years later, Gregorc (1979a) revealed more of his philosophical and definitional stance. He typified his research as being phenomenological, consisting of the cataloguing of overt behaviour (pheno) and the analysis of the behaviour to determine its underlying cause (noumena). He then presented the following phenomenological definition of learning style: "Learning style consists of distinctive behaviours which serve as indicators of how a person learns from and adapts to his environment. *It also gives clues as to how a person's mind operates*" [italics added](p. 234).

An important question surfaced, namely, what then accounts for differences in style? Gregorc suggested three sources: a nature/nurture rootedness; patterns originating in the environment and culture, and a pattern that is esoteric in nature, lying within the subjective part of our individual natures. If one takes into account that every environment places demands upon individuals for adaptation, it becomes clear that it is the *rational powers of the mind that are instrumental in aligning learning styles and environmental demands*. An important inference to be drawn is that learning style consists of the outward display of qualities of the mind.

2.2.3 Learning/teaching styles: Their nature and effects

Later in the same year, Gregorc (1979b) contributed a chapter in a publication of the NASSP. In it he further explored the nature and effects of learning/teaching styles. He started the article with the Gestalt maxim "the whole is greater than the sum of the parts", commenting that educational literature has been very good at discussing 'parts' but that a lot is still hidden in the 'whole'.

He offered a slightly adapted version of his definition of learning style, worded as follows: "Learning style . . . consists of distinctive and observable behaviors that provide clues about the mediation abilities of individuals" (Gregorc, 1979b, p. 19). Through their characteristic sets of behaviour people 'tell' us how their minds relate to the world, and therefore, how they learn. These characteristic sets reflect specific mind qualities that persist even though goals and content may change. After identifying the dual mind-qualities, (namely abstract-concrete perception, and sequential-random ordering), Gregorc reiterated that those mind-qualities serve as mediators as we learn from and act upon our environment. Physically these mind-qualities are manifested as behaviour and register in our conscious minds as preferred means of learning and teaching. These behaviours and related preferences then could allow us the identification of styles through observation, interviews, and "paper-and-pencil instrumentation" (1979b, p. 20), perhaps a 'premonition' of the development of his own measuring instrument later. The

descriptors of the four types of learners (CS, CR, AS, AR) added some new and adapted behavioural and preferential examples.

2.2.4 An adult's guide to style

Gregorc's book "An adult's guide to style" (1982a), is arguably his most important work. In it, he formally stated and presented his system of thought, the 'ORGANON System', as well as his measuring instrument, the Gregorc Style Delineator, already hinted at in 1979.

The ORGANON System is an organized viewpoint of how and why the human mind functions and manifests itself through the human personality. The system was arrived at by using a phenomenological qualitative research method. As mentioned before, overt behaviours (pheno) and their probable underlying causes (noumena) were used to draw inferences about the nature (logos) of the mind qualities of the individual.

The philosophical principle upon which the System rests reads as follows: *"The primary purpose of life is to realize and actualize one's individuality, spirituality, and collective humanness"* (Gregorc, 1982a, p. v). From this basic principle, eight tenets emerged:

1. Every human being has universal qualities which are common to all other human beings.
2. Every human being is unique unto himself or herself- physically, emotionally, and mentally.
3. Every human being is equipped to realize and actualize both his or her universal and unique qualities.
4. Every human being is goal-oriented to survive and be fulfilled physically, emotionally, mentally, and spiritually.
5. Every human being exists within an outer, objective world which can promote or frustrate the realization and actualization of his or her universality and uniqueness.
6. Every human being has an inner, subjective psychic life called the SELF, or psyche, consisting of the weightless and formless properties of purpose, perception, conception, apperception, love, and will.
7. Every human being has a mind which functions as a decision-making instrument to align his or her inner psychic life with the outer world.
8. Every human being's purposes in life are fulfilled and experienced when a product and/or performance of that human being is expressed and manifested in the outer world.

The human mind is the most powerful 'determining' instrument, and the ORGANON System deals, phenomenologically, with two mediation abilities: perception and ordering.

Gregorc supplied only a brief discussion of these mediation abilities before launching into a full presentation of the Style Delineator and its accompanying stylistic characteristics. 'Mediation Ability' is a theory in itself, mainly stating that the "...human mind has channels through which it receives and expresses information most efficiently and effectively" (Gregorc, 1982a, p. 5). The *mediation abilities*, a collective term for the utilization of the power, capacity and dexterity of the channels, is the outward appearance of an individual's *style*. Since the Delineator was designed to reveal specifically two types of mediation abilities, a brief overview of these two types will be provided.

Perception

Perceptual abilities are the means through which people grasp information. There are two emergent qualities to these abilities: *abstractness* and *concreteness*.

Abstractness- This quality is characterized by the ability to grasp, conceive and mentally visualize data through the faculty of reason. It also emotionally and intuitively registers and deals with the inner and subjective. It permits the apprehension and perception of that which is invisible to the five physical senses.

Concreteness- This quality captures and mentally registers data through the direct use and application of the physical senses. It permits apprehension, through the physical senses, of the concrete world.

Ordering

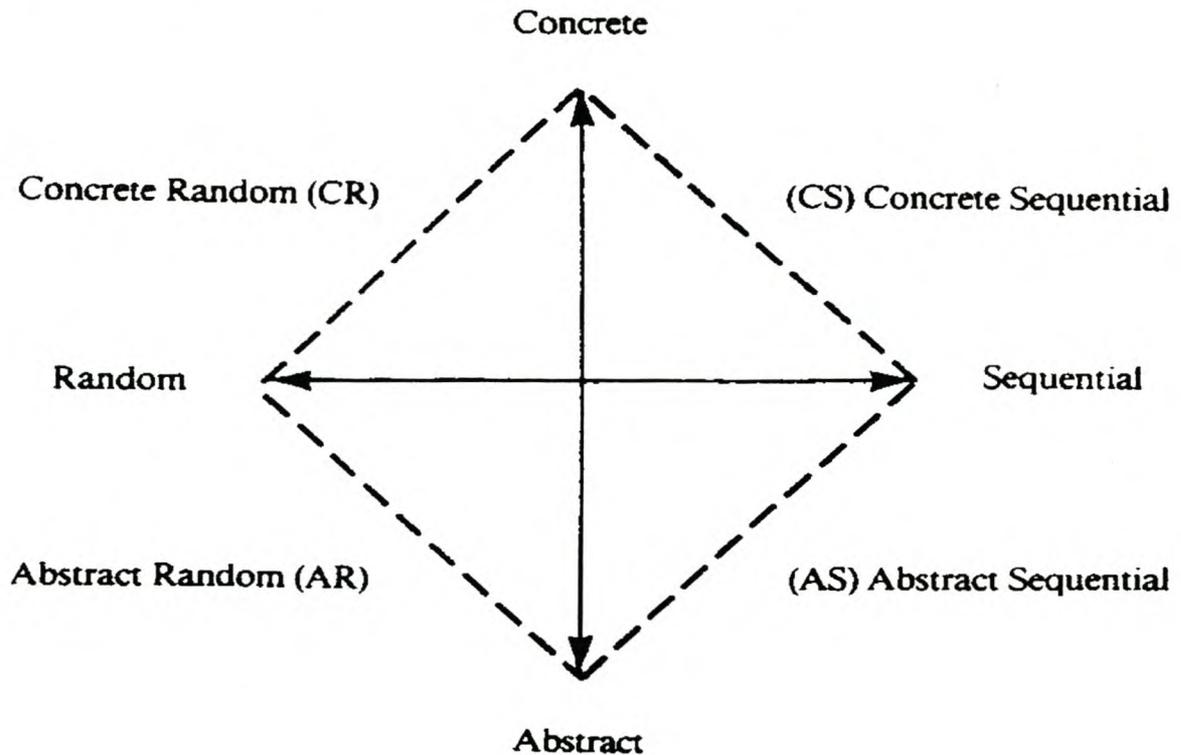
These abilities are the ways in which people authoritatively arrange, systematize, reference, and dispose of information. Two qualities emerge.

Sequence- The mind is disposed to grasp and organize information in a linear, step-by-step, methodical and predetermined order. By the gathering and linking of elements of data, information is assembled. It has the enabling quality of naturally sequencing, arranging and categorizing discrete pieces of information. It encourages expression in a precise, progressive and logically systematic manner.

Randomness- This quality disposes the mind to capture and organize information in a nonlinear, multifarious way. Large amounts of data can be imprinted on the mind virtually immediately. Information can also be held in abeyance and each piece has equal attentional opportunity. Such information however, when called up, may not adhere to any prior arrangement. This quality therefore enables a person to deal with numerous, diverse and independent elements simultaneously and holistically. Expression is active, multifaceted and unconventional (Gregorc, 1982a, pp. 5, 6).

In Section II of the book Gregorc (1982a) presents the Gregorc Style Delineator, the specific purpose of which it is to identify an individuals' natural means of mediation and transaction. The four distinct transaction ability channels are designated as being Concrete/Sequential (CS), Abstract/Sequential (AS), Abstract/Random (AR), and Concrete/Random (CR).

Figure 2 graphically illustrates Gregorc's Style Delineator model.



(Keefe, 1987, p. 18)

Figure 2 The Style Delineator Model.

Gregorc (1982a) devoted Section III of the book to a full discussion of the dominant style characteristics. The scores received on the Style Delineator relate to specific clusters of distinguishable characteristics, constituting STYLE. In order to simplify the explanation concerning the broad scope of the dominant style characteristics, each perceptual / ordering channel is divided into fifteen categories.

1. *World of reality* - the 'space' wherein the mind receives, creates, projects and experiences thoughts, ideas and forms. The space may be physical, material, concrete and/or

metaphysical, formless and abstract.

2. *Ordering ability* - Method(s) used to organize and structure the world of reality.
3. *View of time* - Perception of the past, present, and future used to measure, locate, and place experiences in the world of reality.
4. *Thinking processes* - The activity of examining whatever happens to pass or to attract attention regardless of results and specific content.
5. *Validation process* - The identification, judging, substantiating and confirmation of "truth".
6. *Focus of attention* - The dominant "object" which an individual concentrates upon, identifies with and chooses to appropriate.
7. *Creativity* - The ability and process used to bring an idea into manifestation and/or existence as a product.
8. *Approach to change* - The attitudes, activities, and courses used by an individual to make something 'different'.
9. *Approach to life* - The attitudes, activities, and courses used by an individual to command and direct experiences in his 'world of reality'.
10. *Environmental preference* - The outer world conditions which an individual finds most attractive and conducive to facilitating the fulfilment of his needs, wants and desires.
11. *Use of language* - The use of specific words which give tangible evidence that different types of thinking processes are occurring within a person's mind.
12. *Primary evaluative word* - The word(s) most often used in reporting a value judgement of the highest rank.
13. *Major intolerances* - Perceived attitudes, behaviours, and environmental conditions which irritate an individual to the point where he refuses to allow them to exist.
14. *Negative characteristics* - The peculiar qualities and tendencies of an individual which cause alienation and block constructiveness, helpfulness, cooperativeness, and interfere with the psychic well-being of both himself and others.
15. *Observable traits* - Distinguishable sample behaviours that can be observed by other individuals (Gregorc, 1982a, pp 17, 18).

Gregorc added the cautionary note that it is important to remember that no individual is a pure style. This is due to the holistic nature of the human personality.

After fully discussing the dominant style characteristics for each of the four channels according to the above listed categories, Gregorc provided a summarized version, a brief

synopsis of the style characteristics (See Appendix 1). It should be noted that Gregorc included only twelve of the fifteen style characteristics in the synopsis. No explanation is evident. However, Jonassen and Grabowski (1993, p. 289) refer to “... 12 variables of perceiving and organizing ...” in discussing the differences between the four types of learners.

‘An adult’s guide to style’ ends with a self-study section. After providing the rationale, means of differentiating and analysis of two sets of mind qualities and their resultant characteristics, collectively seen as an “awareness and consciousness raising stage” (Gregorc, 1982a, p. 49), a serious, in-depth personal application follows. A thorough internal and external study of characteristics should lead to an individual recognizing his or her own qualities, characteristics, biases and world of reality. This is imperative, for individuals have to begin with themselves before they can analyze and apply theories to others. The gaining of self-knowledge and an understanding of personal style requires personal observation; it is only through this that strengths and weaknesses become apparent. The self-study exercises have this as their final objective, and it is the end product of the Gregorc Style Delineator.

2.2.5 Style as a symptom: A phenomenological perspective

In this article, Gregorc (1984) started emphasizing the close relationship between *style* and the *mind*. He offered the following proposition: “... style is symptomatic of particular systems of thought and of peculiar qualities of the mind” (p. 51). The article, as is explicitly evident from the title, was again written from a phenomenological perspective. Stylistic characteristics are revealed as surface indicators of two deep levels of the human mind, namely whole thought systems and unique qualities of the mind which the individual uses to establish links with reality. The phenomenological perspective especially stresses the fact that personal characteristics are “integrally tied to deep psychological constructs” (1984, p. 51). Knowledge of the relationships between and among specific stylistic characteristics, and their underlying forces can be an important means of the understanding of submerged forces behind individual differences.

This article illustrated the Gregorcian ‘evolution’ of style, a clear distinction being made between the early and the later studies. In 1970 Gregorc, together with some colleagues, was involved in naturalistic studies of learners in classrooms, and became interested in the fact that individuals used a “range of behaviours” as they learned various content and skills. In 1974 a study of 40 people, ranging from ages 13 to 65, was initiated. The selected participants had to meet the following three criteria:

- a. Successful learners, demonstrating clear-cut and consistent learning behaviours;

- b. Able to discern and articulate feelings;
- c. Willing to be observed, provide protocol materials, and be interviewed with open-ended questions in order to collect personal perceptions.

Gregorc selected phenomenological methodology for the following important reasons:

- it provided a framework for describing and cataloguing both in-class and out-of-class behaviours and characteristics;
- it permitted the collection and analysis of two types of data, a cognitive subjective perspective, and a collection of the individual's feelings: prior to, during and subsequent to the behaviour (Gregorc, 1984, p. 52).

After further investigation, which included the interviewees' descriptions of the steps, processes and approaches they used for learning new information and skills, and queries regarding favourable and unfavourable conditions concerning their personal growth and development, three inferences were drawn.

1. *Dispositions are both natural and learned.*

Interactions with the world in specific ways are inborn, but these style patterns can also be learned or adopted.

2. *Mindsets arise from deeper driving forces.*

Clues are provided concerning individual frames of reference or mind sets, revealed from even deeper psychological bases. Four particular 'driving forces', or qualities of the mind were identified. Firstly *space* qualities, dealing with concrete space (physical sensation) and abstract space (intellect, emotions, imagination, intuition); secondly *time* qualities, the structuring of reality in a sequential (linear, serialized) or a random (nonlinear, multi-dimensional) manner. Thirdly *mental processing*, either deductive or inductive; and lastly *relationships*. All of the interviewees evidenced use of all qualities, with only a difference in degree.

3. *Individuals are predisposed to relate best to certain conditions for personal growth and development.*

Most people are therefore predisposed to relate most effectively to certain environmental situations which are in accord with the qualities and mindsets they possess, despite similar driving force capabilities for establishing contact with existential realities.

It should be noted that it is Gregorc's second inference that became the main thrust of later theoretical revisions.

To demonstrate the evolution of style, Gregorc (1984) also discussed his 1977 study,

done in collaboration with Helen Ward, mentioning the consequent development of “instrumentation”. The aim of the instrument was the assessment of “the relative tipplings of adults with respect to the concrete/abstract space and sequential/random time dimensions” (p. 53). The results (using more than 400 subjects) supported the position that style characteristics are related to systems of thought and the driving forces of the mind, and that people generally are not ‘well-balanced’ in their use of mind qualities.

Gregorc concluded the article by urging professional educators to re-evaluate their thinking about style - especially concerning the fact that it is the external manifestation of an individuals' interaction with the world, and that people's abilities indeed may vary functionally in quantity and in quality. A different manner of thinking pertaining to the nature and meaning of style - style identification - is called for.

2.2.6 Inside styles: Beyond the basics

In 1985 Gregorc published an extensive work, adopting a question-and-answer format, the different chapters covering a wide array of style-related topics. Only the comments that have direct bearing upon this investigation will be extracted.

Gregorc's initial admonition and challenge was that an understanding of the 'styles of the mind' and a study of 'style' is a lifelong process necessitating continuous effort: 'Style', with its deep psychological roots, represents only one element in the holistic learning process. He reiterated his definition of style (which evolved through direct experience and a phenomenological perspective on existential reality) as being “the outward product of the mind and psyche,, consisting of outer behavior, characteristics, and mannerisms which are symptomatic of the psyche and of particular mental qualities” (1985, p. 7).

Gregorc strongly expressed himself on the topic of the need for models, definitions and terminology. He defines a model as being a “simple and economical theoretical construct which describes someone's view of a certain set of phenomena”, allowing “prediction of the behaviours or components within its structure” (1985, p. 8). He stressed the importance of models having practical components. Principles, guidelines, suggestions and organizational structures are some of the components he believes to be included in the “theoretical construct of someone's point of view” (1985, p. 8). Gregorc specifically pointed out that his model's practical component was “manifest in the form of a knowledge base, precepts, principles, guidelines and research-based suggestions” (1985, p. 9), which demands a phenomenological attitude and outlook. Definitions and terminology are vitally important for exactness and specificity.

If a model is examined from a systemic perspective, the 'Gregorc System' could be described using the following application: a model having very specific intentions and goals revolving around self-knowledge, self-development, increasing consciousness, and the unfolding of abilities to relate to multiple environments. The main facts and assumptions that undergird the model are the "possession of innate abilities and predispositions for space/time dimensions, relationships, free will, etc." (Gregorc, 1985, p. 12). The 'Gregorc System' finally comes into being after adding in the programmes and procedures that result from the aforementioned premises.

In the chapter entitled "On the Energetic Model of Styles" Gregorc (1985) provided an important and very useful overview of the 'Energetic Model of Styles' (EMS) as a whole. This theoretical construct was designed to "help individuals artificially divide experiences into temporary intellectual compartments in order to study various qualities of the mind" (1985, p. 21). Energy, pure, dynamic energy, the root of the model, is a necessary abstract concept in order to describe the behaviours of bodies and the styles of animate objects.

The projected outcome of the 'Energetic Model', for an individual, is "a greater understanding of his Self and of portions of his mind which permit him to learn from and contribute to the world", and to also "raise his consciousness and see the world through a different perspective" (Gregorc, 1985, p. 21). The individual is clearly the key to understanding the Model, for he or she must recognize their purpose(s) for living, and the means they have for actualizing those purposes.

The chapter also contains the important explanation of the reason for Gregorc changing entitlement of his work from the earlier 'learning and teaching styles', to the current 'mind styles'. Gregorc (1985) explained it as follows:

Learning/teaching styles are still of prime interest to me. However, they have been subsumed under the title of 'mind styles'. As my studies evolved, I became increasingly involved in the *why* and *how* of styles. This evolution led me to the psychology of style and its generic roots in the mind and psyche. Mind styles aptly represents [*sic*] my stylistic work at this time. (p. 23)

In the chapter, "On phenomenology", Gregorc (1985) again motivated his use of the phenomenological methodology for his research. Phenomenology attempts to look for prime causes of specific effects; it attempts identification of the essence of something, and the nature of the driving forces behind the external appearance. This methodology clearly permits a cataloguing of behaviour, meanings and values - style.

The phenomenological method demands certain characteristics of its researcher: he or she

must be able to 'see' behind the exterior image, 'hear' beyond the words and articulations, and have the communication skills and abilities to impart these experiences. Gregorc noted a further eight specific characteristics an aspiring phenomenologist must have: know the research territory or the content of the research problem; read and understand the environment and information; detach and minimize prejudice; possess intuition and self-knowledge; versed in intervention and therapeutic strategies; summarize findings; gather protocols - physical support; and continually strive to know himself (1985, pp. 41, 42).

The ORGANON System (fully described in section 2.2.4), was the result of years of searching and researching using phenomenological methodology. To review, this System views the human mind as an "instrument of thought that determines the ways realization and actualization will be achieved" (Gregorc, 1985, p. 45). Every individual thus has a degree of free will or free choice to realize or not realize his or her goals and potential. The Energetic Model of Styles (EMS) is then a subset of the ORGANON System, describing the specific reality-creating functions of our minds.

It is important to understand how Gregorc views the 'mind' and therefore defines it, since it is the core concept of his model. The mind is the

... metaphysical instrument used . . . for building thought and creating reality. It responds to environmental stimuli and directs mental qualities . . . The mind produces various time/space realities which permit the fixing of one's attention, for identifying oneself as an existing being, and for paying testimony to one's Self. (1985, p. 71)

The styles of the mind are then the fruit of the mind; the styles are the forms that reveal the existence of the inner being.

Style is a physical product of the mind: the Mind Styles Model therefore seeks to focus on the mind as an instrument for creating and experiencing the multiple aspects of reality. In turn the Model and its practical measuring instrument, the Gregorc Style Delineator are thus "designed to help people get in touch with themselves and take responsibility for the *world they create* inside and outside" (Gregorc, 1985, p. 147). Yet this knowledge of mind style is like raw data, only the first step. The process needs to be carried further, modified and reconstructed so that it can be appropriately conveyed and used as a medium that allows the growth of understanding of the Self, others, the environment and their interactions.

2.2.7 The Mind Styles Model: Theory, principles and practice

Gregorc (1998) published this primer on the Mind Styles Model with the intention of providing a condensed synopsis of the “foundation and scaffolding of the Model” (p. 1). Gregorc reminded readers that his work was officially named ‘Mind Styles’ in 1984. This was when his work started focusing exclusively on the mind and psyche as causative factors for style, and moved from and expanded beyond the field of education. Again, only content pertinent to this investigation will be selected.

At the most fundamental level, Mind Styles “offers lenses by which and a window through which individuals can view and experience the world” (Gregorc, 1998, p. 2). As a model it is a construct which represents its creator, Gregorc's viewpoint of reality. The Mind Styles Model was essentially designed to be simple, economical, theoretical, internally constructed and intensely personal (Gregorc, 1998).

When viewed in a systemic way, the Mind Styles Model is not a mere combination of parts or a loose merger of elements - it is a compounded whole. Its essence consists of a prime ideal and a theoretical foundation of principles and beliefs. From this essence are emitted goals, teachings, issues, symbols and language, and procedures and programmes. The interconnections within the Model provide a certain soundness, a completeness. It also supplies a distinct character, intrinsically appealing properties, internal consistency, and criteria and standards for making decisions, taking action, and then evaluating results (Gregorc, 1998).

According to Gregorc, the “heart of the Mind Styles Model lies in its conviction core, a center consisting of its *raison d'être*, theoretical propositions, philosophical premise, key principles and beliefs and its primary goals” (1998, p. 5). The Model came into being to help individuals live authentic lives, and in so doing experience greater health, happiness and contentment; or, stated more philosophically, the most important function of human life is the realization and actualization of its Spirituality, individuality, and humanness (Gregorc, 1998).

Distinct principles and beliefs form the framework of the Mind Styles Model. Apart from the eight specific principles (presented in Section 2.2.4), Gregorc (1998, pp. 6, 7) offers the following nine beliefs that are essential for further understanding his built-in system of thought:

1. Every human being is endowed with a uniquely balanced and proportional set of mental energies and mind channels for interacting with the world.
2. An individual's endowments and interacting abilities manifest as behaviours, characteristics, mannerisms and products known collectively as style.
3. All interactions are directed and guided by benevolent, impersonal, unchangeable and

unbreakable Natural laws.

4. The qualities of the mind cause us to attract and be attracted to people, places and things that are appropriate for our needs. They also cause us to repulse and be repulsed by inappropriate people, places and things.
5. Living in harmony with one's endowments and environment promotes an authentic lifestyle and a sense of rightness, health and vitality.
6. Living in disharmony with one's endowments and environment yields a false lifestyle and an attendant sense of wrongness, disease and death.
7. Free Will permits each human being to choose how to live, in harmony or disharmony, with one's nature and environments.
8. Deviations from one's true nature causes mental and physical discomfort. These are warning signs requiring compensatory action to restore mental balance.
9. The faculty of consciousness, manifesting through the mind, permits humans to become increasingly aware of Life's nature and processes and the consequences of thoughts, words and deeds.

The primary goals of the Mind Styles Model are thus to "prompt increased consciousness of the Self in relation to the environs; promote the attitude of harmlessness; and encourage right action at the appropriate time" (Gregorc, 1998, p. 7), its purpose-of-design being to "prompt awareness, reason, caution, humility, moral commitment and change in a timely manner" (1998, p. 11).

Gregorc ends the primer with the following closing remarks - a poignant affirmation of the abovementioned goals and purposes:

Nearly three decades of labor in the field of style has taught me that we have a constitutional need to recognize our own social significance. There is nothing more fulfilling than realizing that we are somebodies, we are wanted and loved, and that our presence makes a difference on this planet. Conversely, nothing is more devastating than feeling that we are nobodies, unwanted, unloved, worthless and that our life has no meaning at all.

The Mind Styles Model is dedicated to serving that constitutional need and to transforming the forces that prompts us to deny our human and spiritual significance. (Gregorc, 1998, p. 27)

2.3 Gregorc in literature

This section will trace references to Gregorc's work in other publications. A combined thematic-chronological organizational approach is used.

2.3.1 Theories and models

Gregorc was one of the first researchers to examine learning style in school populations. Learning style, generally, may be defined as students' consistent ways of responding to and using stimuli in the learning context (Hayden & Brown 1985).

Quite a few sources associate Gregorc primarily with learning style. Davis and Schwimmer (1981) note Gregorc's definition of learning style as consisting of "distinctive behaviors which serve as indicators of how a person learns from and adapts to his environment [input / output]. It also gives clues as to how a person's mind operates [processing systems]" (p. 376). Learning styles are used in different ways. Aaron and Skakun (1999) view learning style as being the strategy that a student brings to a learning situation, influenced amongst other factors, by personal characteristics. Another common approach in learning style theories is where there is a focus on the individual. The encouragement of personal awareness is especially emphasized by Gregorc, clearly illustrated by his sustained use of the dictum 'know thyself' (Brandt, 1990).

Visser (1986) considers Gregorc to be an expert in the area of learning styles. Concerning the origins of learning styles, Park and Visser (1988) cite Gregorc's conviction that style is inborn, which implies a degree of constancy. Learning styles reflect inborn characteristics; deep-lying driving forces which have a psychological origin, and adopted or learned style patterns. Keefe and Ferrell (1990) use Gregorc and Ward's 1977 article in order to summarize thinking about the origin of style, quoting three hypotheses on learning style tendencies, namely an "inherent natural learning style", a "synthetic strength, which becomes a part of the individual's functioning", and an "adopted artificial style, which never becomes part of the individual's typical functioning" (p. 58).

Dillon and Schmeck (1983) note Gregorc's approach to the study of learning style as being based on his observations and interviews of students. The resulting four learning styles (Abstract Random, Abstract Sequential, Concrete Random, and Concrete Sequential), leads to the conclusion that "learning is based on both concrete experience and abstraction", but also finds it to be "either random or sequential" (p. 241).

De Bello (1990) includes Gregorc in his comparative summary of eleven major learning styles theorists and models. He considers the basis of Gregorc's model to be that "style consists

of distinctive, observable behaviors that provide clues to the functioning of individuals' minds and how they relate to the world" (p. 215). These mind qualities then suggest that individuals learn in combinations of dualities - particularly perception and ordering. The four propensities - abstract, concrete, random and sequential - were found by Gregorc to combine into distinct styles. De Bello (1990) also notes that while all individuals demonstrate the four patterns to some degree, most only demonstrate inclinations toward one or two. Although Gregorc believes that "styles emerge from in-born predispositions", they can be encouraged and disciplined" (p. 216).

Matthews (1994) notes that although widespread agreement support the concept of the existence of individual learning styles, learning style researchers often define it differently. She uses Gregorc's emphasis on distinctive behaviours and dualities as an example.

Sims, Veres and Shake (1989) acknowledge Gregorc as being one of the numerous researchers during the 1970s which developed various definitions, models, instruments and techniques for assessing students' learning characteristics. Ellis and Fouts (1997) presents three areas of learning style characteristics, depicting Gregorc as using the category of 'cognition' (perceiving, finding out, getting information), and the characteristics of abstract/concrete.

The terms 'learning style' and 'cognitive style' are sometimes used interchangeably. "There has been longstanding interest within the behavioral sciences in developing typologies of behavior" (Bokoros, Goldstein, & Sweeney, 1992, p. 99). This quotation credits Gregorc as offering such a classification system in the area of learning style. At the same time the authors describe Gregorc's model as being a measure of cognitive style. Offering a different, yet similar view, Drummond and Stoddard (1992, p. 100) sees Gregorc's model as measuring the "cognitive dimension of learning style", while Harasym, Leong, Juschka, Lucier and Lorscheider (1996) indicate Gregorc's model and its resulting psychometric instrument as being able to identify an individual's preferred learning style by their tendency to use four distinct mediation channels of 'mind' styles, i.e. Abstract Random, Abstract Sequential, Concrete Random, and Concrete Sequential.

Both Keefe (1987), and Seidel and England (1999) classify Gregorc's model as a cognitive style model. Keefe specifically identifies Gregorc's model as being 'bi-dimensional', in that two information-processing dimensions are combined: concrete versus abstract and random versus sequential styles. O'Brien (1990, 1991), adds to the description of Gregorc's model as being a cognitive styles model, measuring the mediation (cognitive) abilities of perception and ordering, while O'Brien and Wilkinson (1992) note that the Gregorc model indicates that there

are 'a number of systematic cognitive style differences among individuals" (p. 158).

Joniak and Isaksen (1988) describe Gregorc's approach as being a 'mediational channel' approach, having as its purpose the measurement of cognitive style. Gregorc's mediation theory's two postulated dimensions (perceiving and ordering information) then suggests that individual's preferences can range from concrete to abstract and from sequential to random. The resultant four styles (Concrete Sequential, Concrete Random, Abstract Sequential, and Abstract Random) come into being because individuals tend to prefer one aspect of each dimension.

Dunn, De Bello, Brennan, Krinsky, and Murrain (1981) suggest that distinctive behaviours and dualities are emphasized by Gregorc. According to them, Gregorc also addresses the "element of structure"; includes in his descriptions "motivation and sociological needs"; incorporates "perceptual modes"; involves "thought processing"; as well as referring to "learners preferences for sequential or random learning in either an abstract or concrete form and encompasses electromagnetic theory" (pp. 372, 373).

Claxton and Murrell (1987) view Gregorc's perspective as part of the information-processing model. According to them, Gregorc believes that learning styles arise from inborn predispositions or proclivities, and people learn through both concrete experience and abstraction. In addition to these modes, any individual may learn either randomly or sequentially. Each of these dualities can be considered to be qualities that indicate how individuals associate to the world. When the two modes are 'crossed' with each of the subdivisions, a 'typology of patterns for learner preference' is produced, namely: Concrete Sequential, Concrete Random, Abstract Sequential, and Abstract Random. It is to be noted again that while individuals exhibit all four patterns to some extent, most have a inclination to only one or two styles.

Walton (1988) interprets Gregorc's work on style in a very different manner, 'labeling' it a "communication / behaviour style delineator approach". He cites Gregorc as follows:

Research shows that different styles of communication, behaviour and learning cause people to identify, judge, substantiate, confirm and validate truth in different ways. To some, seeing is believing. Some know truth through hunches or intuitive flashes; others only accept truth when it is backed by statistical studies or by replicable processes. (1988, p. 284)

Sternberg and Grigorenko (1997) include Gregorc's energetic model as one of the major style theories representative of the personality-centered approach. According to them, Gregorc's model suggests that "styles can be understood in terms of two basic dimensions: use of space and use of time" (p. 705). Space would refer to perceptual categories (for the acquisition and expression of information), which is divided into concrete (physical) and abstract (metaphorical)

space. Time orders facts and events in either a sequential (step-by-step / branchlike) or a random ordering (weblike / spiral) manner.

Sternberg earlier recognized Gregorc's theory as one of the proposed theories of style, based on empirical observations rather than theoretical background, which attempts to "describe how people think" (1994, p. 37). Dryden and Vos (1997) cite Gregorc's division into four separate groups of individuals' 'favourite' thinking styles, namely Concrete Sequential, Concrete Random, Abstract Random, and Abstract Sequential. These four styles thus describe patterns, mindsets, and modes of self-expression (Grigorenko & Sternberg, 1995).

Butler (1988) describes Gregorc's approach from a different angle. She notes that Gregorc found that individuals' mannerisms and outward behaviour to provide clues as to how they approach the world; but more specifically, how they approach thinking in particular. Gregorc observed how individuals, in any given situation, perceive either concretely or abstractly, and organize their thoughts either sequentially or randomly. Combining these four learning approaches, Gregorc identified four predominant types of mind styles. Jonassen and Grabowski (1993) state that fundamental to Gregorc's development of the characteristics of the four mind styles is the belief that individuals have internal, subjective patterns of learning that include general, common qualities, as well as specific, unique physical, emotional and mental qualities.

After having presented Gregorc in literature since the early eighties, we finally end with a current interpretative comment on his theory. The study of Gregorc's Mind Styles therefore, is the process of understanding the real essence as well as the 'innermost motivations' that lie at the heart of each individual. It relates to certain powerful drives within the psyche of each individual (Gregorc, D., 1997). Gregorc's roots in and strong affinity with Jung's theory again become apparent. These drives or 'archetypal needs' are objectively expressed

(i)n manners that are unique and in strict accordance with each individual's blueprint or constitution. Therefore, a person's needs will be peculiar to him or her. They will be colored and influenced not only by the quality of their innate disposition or nature (style), but also by the overall cyclic unfolding of the individual's growth and development physically, emotionally, mentally and spiritually. (Gregorc, D., 1997, p. 24)

2.3.2 Research and findings

Having traced the theoretical presence of Gregorc in literature, the practical manifestation of his work will next be considered. Various researchers have applied Gregorc's theory and instrument, the Style Delineator, to a variety of research questions. The reported findings of these researchers will be presented chronologically.

Hendricson, Berlocher, and Herbert (1987, as cited in Claxton & Murrell), studied institutional effects on dental students' learning style. Their intent was to ascertain whether styles are affected by a school's educational philosophy, teaching methods, testing procedures, and curricular arrangements. Gregorc's Learning Style Delineator showed that most of the students were Concrete Sequential (CS), typically preferring learning environments that are highly structured with well-defined learning tasks; logically sequenced topics and a curriculum with a practical orientation. It appears thus that the learning environment did not substantially alter students' learning styles but that learning styles remain relatively stable over time, and that students' learning styles are primarily a by-product of the institution's selection process rather than caused by the institution.

Using the Gregorc Style Delineator as one of the measuring instruments, Visser's (1986) doctoral dissertation had as its purpose the identification and description of the learning styles of home economics students at the University of Stellenbosch. The results, also reported in a later article (Park & Visser, 1988), seem to indicate that home economics students have a specific learning style. The group of students' dominant learning style was Concrete Sequential (CS), exhibiting such style characteristics as concrete, logical, practical, and hard working.

O'Brien (1991) designed a study to investigate selected characteristics of college students in reference to Gregorc's four cognitive styles: Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random. This was "... based on the proposition that certain systematic patterns may be present and that through understanding such patterns, we may be able to enhance our understanding of the educational process" (1991, p. 494). The research questions of this investigation follow, together with the yielded results:

1. Are there differences between male and female students in regard to their cognitive style preferences?

The data suggests that there are distinct cognitive style differences between male and female students, and the pattern of these differences seem to be "... intuitively correct in terms of traditional expectations ..." (1991, p. 498). Males appear to possess more of the characteristics associated with the AS (focus on broad mental constructs; process

information in an analytical, logical, correlative, and sequential manner) and CR cognitive styles (focus on their interaction with physical reality; process information instinctively, intuitively, independently, and in a multi-dimensional fashion), while females are associated with the AR cognitive style (attend more to feelings, emotions, and imagination in a non-linear fashion; interprets information holistically).

2. Are there differences in cognitive style preferences among students majoring in different areas of study?

In this study, students with the following majors were used as sample: Business, Early Childhood / Elementary Education, Secondary Education, Rehabilitation and Special Education, Adult Education, Vocational Teacher Education, and various Arts and Sciences subject majors. The Early Childhood / Elementary Education and Rehabilitation and Special Education majors scored significantly lower than all the other majors on the AS style. The Business majors scored significantly lower on the AR scale than subjects in all other majors, while the Rehabilitation and Special Education majors scored the highest.

3. Are differences in the cognitive style preferences of students associated with different levels of academic achievement? Or, are there differences in cognitive style preferences among students at different educational levels?

The AS and AR scales discriminate among students exhibiting different levels of academic achievement and at different educational levels. Students with grade point averages (GPA's) less than or equal to 1,0 appeared deficient in the characteristics associated with the AS style. This seems to suggest that at least some of the characteristics might be related to academic success (O'Brien cites corroboration in that persons holding baccalaureate degrees possess more AS than AR style characteristics). It is thus possible that "... the AS style is most clearly associated with academic achievement and that as students attain higher educational levels, they become more intellectual and less emotional in dealing with the academic environment" (1991, p. 499).

Davenport (cited in Bokoros et al., 1992) found that males scored significantly higher on the Abstract Sequential (AS) channel, while females scored higher on the Abstract Random (AR) channel, with both genders being predominantly Concrete Sequential (CS). Davenport's findings thus partially confirm O'Brien's (1991) findings: males seem to be strongly associated with the Abstract Sequential mind style, while females are more closely aligned with the Abstract Random mind style. The existence of a similarity between the Myers-Briggs Type Indicator

(MBTI), and the Gregorc 'types': Thinking / AS; Feeling / AR; Sensates / CS; and Intuitives / CR, was also suggested.

Jonassen and Grabowski (1993) supplied a useful summary concerning research done (to date), with Gregorc's learning styles in the fields of learning and instruction:

1. Student teachers were found to be Concrete Sequential (CS) or Abstract Random (AR) learners (Walker & Kleine, 1985).
2. A study of the relationship between the learning styles of undergraduates and students involved in a self-study or group interaction method of instruction found no achievement or attitude interactions on any of the styles (Lundstrom & Martin, 1986).
3. There seems to be a significant interrelationship between learning and Joyce and Weil's models of teaching (Herbster, Abel, Hargrove, & Weems, 1987).
4. No relationship was found between Gregorc learning styles and the reading achievement of sixth-grade students (Atchison & Brown, 1988).
5. The Concrete Sequential style seems to be the prevalent learning style of physicians (Van Voorhees, Wolf, Gruppen, & Stross, 1988). Taking into account that Hendricson, Berlocher, and Herbart (1987) found that most dental students were found to be Concrete Sequential (see p. 32), the tentative conclusion can be drawn that for the Medical Science field, represented in this case by dentistry and medical students, the Concrete Sequential learning style (and therefore mind style), seems to be descriptive.
6. The Concrete Abstract and Random Sequential styles were found to affect the interaction between communication styles and personality types in single mother-son relationships (Walton, 1988).
7. No significant relationship was found between stress level and learning style in elementary or secondary school teachers (Abel, Herbster, & Prince, 1989).
8. An investigation into the relationship of style to learning style performance of Hispanic and Anglo college students found no significant patterns (Kreuze & Payne, 1989).

Seidel and England (1999) investigated the preferences of liberal arts students for various teaching methods and testing techniques in relation to their cognitive style. Gregorc's assertion, that most individuals are naturally predisposed to function in one or two mediation channels, was found to be consistent. No differences between women and men were found regarding learning style. Seidel and England's (1999) finding, that women and men exhibit no distinctively different mind styles, thus stands in direct contrast to the findings of O'Brien (1991) and Davenport (1992), who both found men to be dominantly Abstract Sequential and women Abstract Random.

Furthermore, the study showed that the "... majority of participants who reported majoring in a science were classified as either Concrete Sequentials or Dual Sequentials while the majority of participants who reported majoring in the humanities were classified as Dual Randoms" (1999, p. 872). Again, comparing these researchers' reported science – Concrete Sequential link with the findings of Visser (1986), Hendricson et al. (1987), and Van Voorhees et al. (1988), there seems to be a strong alignment between the general field of Science and the Concrete Sequential mind style. Analysis further indicated scores on the Sequential-Random continuum of Gregorc's model to be more strongly related to learning style than those on the Concrete-Abstract continuum. Finally, Gregorc's cognitive styles appear to be associated with the preferences of liberal arts college students.

The wide range of research applications of Gregorc's theory is thus evident when considering some of the research themes presented in this section: the identification of learning style; the relationship between learning style and teaching style or method of instruction; the impact of identified learning / mind style on certain characteristics (for example gender, the choice of major, academic achievement); and the effect of mind style on communication style and personality style.

The overview of these research findings, based on Gregorc's work, therefore proves its vast potential, and, in the words of Sternberg and Grigorenko, "... the extent to which the theory has spawned and continuous to spawn psychological research and, ideally, practical application" (1997, p. 703).

2.4 Theories of occupational choice and career development

2.4.1 Introduction

Occupation, career and vocation are words often used interchangeably. However, regardless of which specific word is used, they all refer to a lifelong process of "developing beliefs and values, skills and aptitudes, interests, personality characteristics, and knowledge of the world of work" (Tolbert, 1974, as cited in Zunker, 1981, p. 2). Occupational choice is indicative of an individual's needs and goals in the fulfillment of ultimate vocational purpose.

It has long been assumed that, concerning occupational choice, individuals have "unique patterns of ability or traits", or that career choice can be viewed as an "expression or extension of personality" (Zunker, 1981, p. 79). Conversely, "occupation being a type of human endeavour, it follows logically that differences in people will be reflected by differences in occupational pursuits and achievements" (Super & Bohn, 1970, p. 9). It follows then that individuals found in

one occupation should have some common characteristics that differentiate them from individuals in other occupations. Many theorists have offered suggestions in an attempt to identify the origins of the differences that exist between individuals engaging in various occupations, and especially specializations within occupations. This question merits exploration concerning psychology, not an “homogeneous discipline” (Plug, 1997, p. 30), and its specialization fields of clinical, counselling, educational and industrial psychology.

Gregorc (1985) asserts that people are drawn to certain careers because of their style, or more specifically, their mindstyle, while Sternberg (1997) maintains that what happens to individuals in life depends not just on how well they think, but also on *how* they think.

2.4.2 General theories

A brief, eclectic sample of occupational choice and career development theories will be presented in this section. Hoppock (1976) points out that such theories are attempts to find “some rational explanation and some basis for understanding of what happens when a person chooses an occupation” (p. 80). These theories will provide a context wherein Gregorc’s assertion may be ‘examined’ - that the mind and psyche, as causative factors for style, result in individuals’ endowments, characteristics, mannerisms and products (known collectively as style). The mind and psyche thus provide clues as to how the world is approached (Butler, 1988; Gregorc, 1998). The various theorists identified by Hoppock (1976) are indicated by means of italics.

According to *Brill*, the normal person does not need any advice or suggestion concerning the selection of a vocation, because he or she instinctively senses what activity to follow. Hoppock (1976), contrasts this psychoanalytically slanted view with *Caplow’s* conclusion that “error and accident often play a larger part than the subject himself is willing to concede”, because occupational choices are made in the “... schoolroom, under the impersonal pressure of the curriculum, and remote from many of the realities of the working situation” (pp. 70, 71).

Forer finds the explanation of occupational choice mainly in the individual’s personality and emotional needs, which often operate unconsciously. The choice of a vocation, he believes, is a somewhat impulsive and automatic process that is not always rational or logical, and not always subject to practical and reasonable considerations. The primary reactions for the selection of a particular vocation therefore have unconscious roots and are an expression of basic personality organization. Forer finally believes that the selection of a vocation is a personal process, the ultimate realization of an individual’s unique psychological development. This can be contrasted with *Ginzberg, Ginsburg, Axelrod* and *Herma’s* statement that “occupational choice

is a lifelong process of decision-making in which the individual seeks to find the optimal fit between his career preparation and goals and the realities in the world of work" (Hoppock, 1976, p. 73).

Roe believes that in order to understand how an individual functions in a job "one must know what his needs are and where and how they are satisfied" (Hoppock, 1976, p. 75). Zunker (1981) further elaborates on *Roe's* contention that the choice of an occupational category is primarily a function of the individual's need structure. The level of attainment within the category though is more dependent upon the level of ability and the socioeconomic background of the individual. *Roe* also emphasizes the importance of the climate of the relationship between children and parents as being the "... main generating force of needs, interests, and attitudes which are later reflected in vocational choice" (Zunker, 1981, p. 8). *Roe* subsequently postulates that occupational choice essentially involves the choice of occupations that are "person oriented such as services occupations" (eg. psychology), or "non person-oriented such as scientific occupations" (Zunker, 1981, p. 9).

For *Super*, the self-concept is the vital force that establishes the career pattern one will follow throughout life. His theory presumes that career choices are implementations of attempts to actualize the skills, talents, and interests reflective of an individual's self-concept, based on the completion of developmentally appropriate vocational tasks (Gianakos, 1999). Occupational choice then, is a process rather than an event - the decision-making and consequent career development a combination of the complexities and variables of differential psychology, self-concept theory, developmental tasks, and the sociology of life stages. *Super's* theory therefore takes a multi-sided approach to the career development process (Hoppock, 1976; Zunker, 1981).

2.4.3 Dispositional and person-environment approaches

Rave (1987, in Arvey, Bouchard, Segal & Abraham, 1989), notes that genetic influences on a wide range of individual differences have been well documented. Gregorc (1985) emphasizes the importance of the "innate composition of needs, aspirations, abilities, capacities, and fundamental principles", collectively known as an individual's *constitution* (p. 56), which contains the blueprint of one's destination. As stated before, Gregorc maintains that individuals are drawn to certain careers because of their style. The reality and existence then of occupational destinations concur with Staw and Ross's (1985) hypothesis that individuals may have stable predispositions toward careers.

The dispositional approach involves the measurement of personal characteristics (Staw &

Ross, 1985). These characteristics allow individuals to interpret the context of careers and career situations in ways that fit their own dispositions. Dispositionists thus contend that “work attitudes and behaviours are determined by, or are at least directly linked to, individual attributes” (Strümpfer, Danana, Gouws, & Viviers, 1998). These authors further note that endogenous personality dispositions derive partly from genetic and early childhood influences, and partly from expansion on those developments by later developments as learned and socialised patterns of response.

Judge, Locke, Durham and Kluger (1998) point out that only recently has attention been given to the hypothesis that purely factors within the individual affect the degree of job and life satisfaction. Job satisfaction implies that a correct choice has been made, which becomes even more significant if we consider that “... jobs are ambiguous stimuli subject to the cognitive manipulation of meaning” (Staw et al., 1986, as cited in Strümpfer et al., 1998, p. 93). The way in which individuals see themselves, the fundamental, subconscious conclusions they reach about themselves, other people and the world, may explain therefore, partially, the dispositional sources of career choice and ultimately - career satisfaction (Judge et al., 1998).

Many theories assume choice of a congruent occupation to be a desirable job search outcome (Tokar, Fischer, & Subich, 1998). The person-environment approach suggests the degree of congruence between an individual's environmental type and interest personality type to be a basis for theorizing about person / environment interactions (Mount & Muchinsky, 1978). The understanding of the interdependence of persons and their environments is important for “... predicting which individuals' personalities will best match the opportunities and constraints embodied in various occupations - ... because occupational choice precedes occupational participation” (Gustafson & Mumford, 1995). Correct occupational choice will eventuate in individuals having jobs that are compatible with their personalities, personal style patterns and psychological environment patterns, thus interacting to create an ideally matched occupation and occupational environment. If individuals and careers can be matched to facilitate a person-environment fit, it may be possible to define “... which types of persons will fit best into which types of psychological work environments” (Gustafson & Mumford, 1995, p. 185); or, as far as this research is concerned, which mind style aligns with which specialization field.

2.4.4 Cognitive style and occupational choice

Cognitive style has been described as consistent individual differences in ways of organizing and processing information and experience (Messick, 1984). It is noted that the term ‘cognitive style’

was initially used by Allport (1937), and was originally defined as “a person’s typical or habitual mode of problem solving, thinking, perceiving and remembering” (Riding & Cheema, 1991, p. 194). An alternative way of defining cognitive style is provided by Witkin (1976), who observes that all individuals have characteristic modes of functioning that are revealed throughout all perceptual and intellectual activities in a highly consistent and pervasive way. The following proposed definition of cognitive style represents an integration of a number of definitions and may thus be viewed as a ‘concluding’ definition:

Cognitive style, being part of personality organization, represents a characteristic mode of information processing which involves a constellation of metaprocesses. Cognitive styles, then, are stable individual preferences regarding the manner of perceptually organizing and conceptualizing the environment as well as reacting thereon or adapting thereto. (Richter, 1992, p. 108)

Grigorenko and Sternberg (1995), citing Gardner (1953), show that various cognitive style theory approaches have as an underlying common denominator the conviction that perceptual systems can be windows into individuals’ cognition. It is interesting to note that a significant number of instruments evaluating cognitive styles use perceptual tasks, perception being one of the mediation abilities revealed by Gregorc’s Style Delineator (Gregorc, 1982a). Similarly, Gardner (1953, as cited in Grigorenko & Sternberg, 1995), notes that “perceptual tasks offer unique opportunities for observing in action individuals’ styles of adaptation to the world around them” (p. 209).

Messick (1984) remarks that growing research evidence clearly indicates that some cognitive styles influence how educational and vocational choices are made, while Furnham (1992) also cites research that suggests that individuals with different personalities have different cognitive styles and use different decision-making strategies that relate to the selection of different academic majors in college.

Certain cognitive styles seem particularly suited to certain academic disciplines (Cross, 1976). Commenting on the process of the making of a vocational choice, Witkin (1976) gives evidence concerning the fact that cognitive style is an important variable in students’ expressed preferences, as well as in the various choices they make at certain points in their academic development when faced with a number of options. Style therefore “plays an identifiable role in his selection of electives and majors, in the vocational preferences he expresses early in his academic career, and in the vocational choice he makes later on (Witkin, 1976, p. 48). Cross (1976) reiterates Witkin’s conclusion that as far as students’ academic and vocational preferences are concerned, cognitive style is a potent variable.

2.4.5 Personality-centered studies of styles

That cognitive styles have implications for occupational choice and performance is evident. There is ample confirmatory evidence concerning the correlational relationship, or overlap, between fundamental career personality types and learning style, a variant of cognitive style, and that these styles are a sub-set of personality (Furnham, Jackson, & Miller, 1999; Jackson & Lawty-Jones, 1996). Tokar et al. (1998) are also of the opinion that personality pertains meaningfully to the types of careers individuals choose and how they function in those careers. This observation has a lengthy history in vocational psychology. However, whereas the styles produced by the cognition-centered approach seem quite close to abilities, “the styles produced by the personality-centered approach seem closer to personality traits” (Sternberg & Grigorenko, 1997, p. 704). The way individuals approach tasks, for example the task of making an occupational choice, depends amongst other things on their personality traits.

According to Osipow and Fitzgerald (1996), the trait-factor approach has as its goal the accurate identification of distinctive personality attributes inherent in various careers. Alternatively, Tokar et al. (1998) view the trait-factor approach as differentiating between individuals predominating one occupational group from those predominating others based on patterns of personality-related variables. The authors further state that considerable empirical evidence has been gathered over the years that assessments of personality are significantly predictive of “career choice behaviours, other career-relevant individual difference variables”, and “various aspects of career adjustment” (1998, p. 115).

Peterson, Sampson, and Reardon (1991), highlight a different aspect of trait-factor theory, namely as being a theory that emphasizes self-knowledge. The basic assumptions of trait-factor theory reflects similar sentiments as Gregorc’s ORGANON System (Gregorc, 1982a; see section 2.2):

1. Each person possesses a unique and stable pattern of traits that can be measured empirically;
2. For each occupation there is a unique pattern of traits required for successful performance of the critical tasks of that occupation;
3. It is possible to match the traits of persons with the trait requirements of occupations on a rational or actuarial basis; and
4. The closer the fit between a person’s traits and the trait requirements of that person’s occupation, the greater the likelihood for successful job performance and personal satisfaction (Peterson et al., 1991, p. 31).

Holland's "Vocational Typology and Personality Theory" - a theory for categorizing persons and environments into explicit typologies - is one of the most well known theories that clearly state that vocational interest and choice is an expression of personality (Gottfredson, 1999; Hogan & Blake, 1999; Mount & Muchinsky, 1978). Costa, McCrae and Holland (1984) observe that "Holland's scheme is perhaps the only persistent attempt to infer the structure of personality from the clustering of vocational interests" (p. 391). Researchers of personality are thus able to affirm that vocational choices can be indicators of personality dispositions, and that vocational preference is an expression of individuality.

A brief summary of Holland's theory clearly illustrates his belief that individuals are attracted to a given career by their particular personalities and numerous variables constituting their backgrounds (Zunker, 1981). The central assumptions of the theory assert that occupations are not discrete entities but that they can be meaningfully grouped into six ordered categories or basic vocational personality types. The categories or types, based on shared psychological features, include Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. These can be used to describe either individuals or environments, and vocational behaviours are influenced mainly by the match between the two (Atkinson, Murrell, & Winters, 1990; Costa et al., 1984).

The six background principles of Holland's typology provide added insight into the motivation of occupational choice:

1. The choice of a vocation is an expression of personality;
2. Interest inventories are personality inventories;
3. Vocational stereotypes have reliable and important psychological and sociological meanings;
4. The members of a vocation have similar personalities and similar histories of personal development;
5. Because people in a vocational group have similar personalities, they will respond to many situations and problems in similar ways, and they will create characteristic interpersonal environments; and
6. Vocational satisfaction, stability, and achievement depend on the congruence between one's personality and the environment in which one works. (Holland, 1973, pp. 6 - 9)

The fourth principle, that the members of a vocation have similar personalities, is especially significant in the light of this thesis, for it follows that each vocation attracts and retains individuals with similar personalities (Holland, 1973). This correlates with Gregorc's

conviction that individuals are drawn to certain occupations because of their style. Furthermore, Gregorc concurs with Holland (Zunker, 1981), concerning the importance of self-knowledge gained by individual self-evaluations. The importance of self-appraisal activities in encouraging progress in the selection of and commitment to a particular career has been emphasized (Gianakos, 1999). Self-knowledge, whether about type or style, enables individuals to "... act on their dominant interests and seek occupations in which their interests can be expressed (Holland, 1996, p. 400), or, "... you'll begin to sense that certain jobs have certain energetic vibrations within them" (Gregorc, 1985, p. 99). Super, as quoted in Hoppock (1976), adds that "people with accurate information about themselves and the world are most likely to make sound vocational decisions" (p. 82).

Zunker (1981) emphasizes that for Holland the stability of career choice is primarily dependent on the dominance of personal orientation. Occupational groups should therefore be 'grossly similar', for the evidence indicates that they have something in common. *"And, if we should form classes made up of vocations demanding similar personalities, we would get groups of people who are alike"* [italics added] (Holland, 1973, p. 9).

2.5 Psychology as discipline and profession

2.5.1 Introduction

The discipline of psychology requires a wide and intricate perspective, an encompassing vision. Mann (1988) states that a paradigm needs to be created in order for us to understand the diverse elements of the field, and how these elements combine and form an integrated domain. It is a popular belief that psychology is a homogenous discipline, united and harmonious. Yet psychologists, as a collective group, hold many contrasting meta-theoretical positions (Conway, 1992). Each specialization field asserts its own philosophical stance. Where do these differences come from? What determines the choice of a specific specialization field in lieu of another? It is the contention of this thesis that our "fundamental values about what psychology is, . . . , are grounded, in part, in pre-reflective cognitive and personality characteristics (Conway, 1992, p. 18).

Metaphysical values are likely related to style, and style may contribute to some observable, overt differences in vocational interest and aptitude. Hoppock (1976) notes that the same occupation may appear attractive to one individual, while appearing abhorrent to another. Apart from the "values and abilities that a person considers when choosing between alternative careers" (Solas, 1996, p. 144), vocational choice is probably mediated by internal aspects. Within

(1976) likewise comments that there is evidence connecting style to choice and performance within a given field, as does Super and Bohn (1970), when they point out that there is ample evidence that indicate that individual differences exist prior to occupational training and experience, and that they are not much affected by later experience in the occupation. This seems to indicate that the characteristics in question could be inborn.

It is an important question that is posed concerning the choice of an occupation. An even more basic question is implied - who or what influences incoming college or university students' selection of a particular major - the first step in the development of most careers. According to Kimweli and Richards (1999), the factors underlying the choice of a major or a career is an important consideration. Mann (1988) concurs when he states that we should be "aware that students differ greatly as to why they approach [a] field, how they learn best, and what they intend to do with what they learn" (pp. 397, 398). He further notes that psychology students, many of them future psychologists, need to be studied, both in their individual complexity and in their collective diversity. For "... while psychology students spend a great deal of time scrutinizing the motives of individuals, just as much effort needs to be expended on examining their own career motives" (Solas, 1996, p. 145).

Psychology is a profession that is notoriously challenging to gain entrance into - selection into post-graduate programmes most notably. Hoppock (1976) points out that there are "... some occupations which are extremely difficult to enter without the prescribed preparation and that education or the lack of it may permit or prevent a person from entering such an occupation" (p. 88). Richter (1992) further notes that the norms for entry into certain professions are extremely rigid, so that some individuals are automatically excluded from entering courses to be trained for these professions. Hofer, Stallings, Reynolds, Cliff, and Russell (1994) observe that all graduate psychology departments endeavour to predict which students have the ability and motivation to become successful psychologists. Graduate students are usually screened by means of some form of selection procedure, "... presumably with the expectation that the selection process identifies the most promising candidate" (p. 448). Ultimately, a complex dynamic of entrance requirements, self-selection and selection by programme staff exists.

Due to the unique nature of the work of the psychologist, it is imperative that the 'right' person be trained - for psychology is first and foremost a healing/helping profession. Mann (1988) provides a useful framework through which to gain an appreciation for the 'encompassing vision', and the 'wide and complex perspective' that psychology requires of her followers. Apart from the three basic aspects of psychology - as a science, a healing/helping profession, and a

search for and repository for wisdom, meaning and beauty - three added orientations can also be distinguished: psychology as an applied, problem-solving field; a facilitator of human growth or potential; and a branch of metaphysics, epistemology and ontology. The challenging complexity is evident!

Any knowledge that can contribute to a better identification and understanding of the qualities needed of a psychologist should be invaluable, especially in a profession where the correct fit is vital. An insight into mind style, Gregorc's contribution to a further 'understanding' of man, may be significant as far as self-knowledge, for the aspirant psychologist, and objective knowledge, for the selection process, is concerned. Much can be gained: according to Holland (1996), an individual and an occupation that is congruently matched, because of an alignment of characteristics, leads to job satisfaction, stability of career path, and most importantly, achievement.

2.5.2 The nature of psychology

Mann (1988), in his essay on psychology, appeals for, and challenges all to strive for a much needed synthesis of the field. He states that he shares with many of his fellow psychologists "... moments of feeling that the field is just too big, too heterogeneous" (p. 397). Yet the reality is that the complex identity of this discipline is more similar than different. Matarazzo (1987) asserts that both undergraduate and graduate students in American departments of psychology, from 1890 to 1987, have taken courses that were "... in broad content, underlying processes, and principles, namely at their core, almost identical, even though such students matriculated during different epochs and in universities that were geographically widely separated" (p. 893). It is debatable whether the situation, internationally speaking, is radically changed at present.

In Matarazzo's 1987 study he found that, concerning introductory and graduate textbooks, the chapter titles and major themes in the subject matter have differed little from one another during the past hundred years. Indeed, the chapter titles of William James' 1890 textbook differed very little from its 1987 counterpart! And it is this content that has defined the parameters of the discipline for the succeeding generations. The basic core content areas and qualifying courses have remained constant. Sheehan (1996) states that psychology is both a biological and a social science, while Matarazzo (1987) identifies the four content areas, qualifying courses, and subject matter as being biological bases, cognitive-affective bases, social bases, and individual differences. Based on this evidence, it can therefore be assumed that the subject matter in the field of psychology has, for more than the past century, remained

comprehensively similar.

It is further important to note that it is this common knowledge base of psychology, and through the assimilation of this core knowledge with its related discipline and specific vocabulary, that “students of psychology ... adopt a common frame of reference that identifies them as members of the same cultural subgroup” (Matarazzo, 1987, p. 894). Notwithstanding this convincing ‘proof’, Staats (1981), in his influential article, proposes that psychology is characterized by separatism, “... A feature that has a pervasive effect and that constitutes an obstacle to scientific progress” (p. 239).

Staats (1981) fully explains his contention that psychology is characterized by separatism. Separatism suggests un-organization, many dimensions, divisions that exist in many areas: theory, method, types of acceptable findings, and individual strivings, to name but a few. “Our field is constructed of small islands of knowledge organized in ways that make no connections with the many other existing islands of knowledge” (Staats, 1981, p. 239). This establishes an acceptance that individuals and areas should pursue isolated paths, negating the consideration of unification.

Recognition of the schisms in psychology that separate and divide the field is essential, Staats (1981) further suggests. While it is important that each field of application maintain its unique focus and individualistic character, it is possible for a non-separistic approach to integrate the ‘legitimate and important striving of each’ (Staats, 1981, p. 250). In his conclusion Staats (1981) repeats his contention that an accepted unified, comprehensive theoretical framework eludes psychology, and emphasizes the desirability of the establishment of a unified theory, and the development of methods for the creation of such a theory. A theory of this nature, which can be used for judging, evaluation and comparison, can only be advantageous.

It is “natural to conclude that disunity is inherent in psychology, that our science consists basically of incommensurable realms of events” (Koch, as cited in Staats, 1981, p. 239). Herewith Koch provides an alternative view on the lack of unity in psychology, yet coming to a very different conclusion. That psychology can be an integrated discipline, he believes, is a myth: it is virtually impossible that a single discipline can encompass the total domain comprised by the functioning of all organisms, especially persons. Even theoretical integration has never been achieved. Koch (1981) thus states that “... psychology is not a single or coherent discipline but rather a collectivity of studies of varied cast” (p. 268). He therefore suggests the acknowledgement, finally, of the non-cohesiveness of psychology, and in its place the institution of the ‘psychological studies’, which will range over the “... immense and disorderly spectrum of

human activity and experience" (Koch, 1981, p. 268).

In essence Koch (1981) supports the idea of individual specialization, different areas of study that will require different methods, or, the impossibility of a single, unified psychology. Kimble (1984), in turn, talks of psychology's different 'cultures'. He clearly notes the identity problem that exists in psychology. "After more than a century of official existence, it still lacks a coherent set of values, there is little harmony among groups of us who practice very different professions, and there is even debate over the definition of our subject matter" (Kimble, 1984, p. 833). Using even stronger language, he notes psychology's 'splintered condition', the existence of sharply polarized opinion, competing value systems, and conflicting cultures, making it "... easy to understand why members ... have trouble communicating with one another" (Kimble, 1984, p. 838). However, he ends on a rather more positive note when he records an observation of a certain 'inner consistency' in a variety of fields: "All of them are concerned with how human beings are living or have lived ... I am not implying that they agree with each other, but ... they display at least a family resemblance" (Snow, as cited in Kimble, 1984, p. 838). Paradoxically then, psychology is a field that is representative of this, displaying both 'splinteredness' and familial resemblance.

The 'positiveness' hinted at by Kimble (1984) is obliterated in some later, including very recent articles. Smith (1994), in looking ahead at American psychology's next century, notes that there is "... a widespread sense of risk that the discipline as we have known it, ..., may be falling apart", having "... no single, essential core that warrants the expectation that psychology can become a unified, integrated science" (pp. 111, 112).

Rice (1997), also expressing belief that psychology as science and profession seems to be "splitting", presents "... four different scenarios depicting what American psychology might look like in another generation or so" (p. 1173), the actuality of this exercise introducing a very somber tone. The titles of the scenarios speak for themselves: science-based practice; psychology as two separate and equal professions; (service delivery and scientific / academic); dissolution; and reunion (Rice, 1997).

Richards (1997) puts forward for consideration a particularly vehement collection of comments on the nature of psychology, portraying psychology as "... having failed as a discipline" (p. 17). In order for the reader to fully appreciate its impact, the statements will be presented without comment.

Psychology is "so fractionated and so ramified as to preclude any two persons agreeing as to its 'architecture'", "moving rapidly in the direction of extreme material and conceptual fragmentation". It is maintained that "current psychology

is much like a jumbled 'hidden figures' puzzle that contains no figure", "an intellectual zoo", whose "disciplinary status is ambiguous at best and chaotic at worst". It does a "disservice ... by providing inappropriate solutions to misconstrued problems". It "must be regularly embarrassed by its inability to explain all sorts of occurrences which the lay community has no difficulty explaining at all" and "renders itself irrelevant in the most damaging sense of the term" by "evading the ... phenomena that so engage the attention of real people". (Richards, 1997, pp. 17, 18)

No wonder that at the end of this diatribe the author addresses 'meta-perspectives' and offers some thoughts toward the creation of a 'metapsychology'!

The previous president of the British Psychological Society (BPS) uses a rather more carefully optimistic approach, employing the maxim "unity through diversity", while at the same time very clearly showing cognisance of the fact that " ... increased specialisation continues to lead to yet further separate education and training routes and membership categories, with no rationalisation or coherence in terms of commonalities ..." (Lunt, 1999, p. 492). The address concluded with the following exhortation directed at members of the society: "We need to unite in our commitment to 'public interest or good' or 'human welfare'" (Lunt, 1999, p. 496), in the face of the rapid growth in the number of professional divisions, which highlights the increasing specialization and fragmentation.

A recent predictive study concerning the status of British psychology as a discipline in the next 25 years regrettably extracted as one of its main themes "fragmentation". Supportive evidence included the following: the various components of psychology will be part of other disciplines due to the fragmentation of the discipline, there thus being no sense in attempting unification (Haste, Hogan, & Zachariou, 2001). There is therefore a strong sense that psychology is changing, that a reformation of boundaries is taking place. However, is it for the better?

Separatism or attempted amalgamation? Seemingly, there is currently evidence for both stances in psychology. What will be the most beneficial for psychology and all those whose mission it is to 'help'? Is there true strength in a consciously created diversity, or is the reality an *unconscious similarity*? The following statement begs agreement: "I have been inviting a psychology that might show the imprint of a capacity to accept the inevitable ambiguity and mystery of our situation" (Koch, 1984, p. 269).

2.5.3 Characteristics of psychologists

Students of diverse personalities and beliefs become interested in psychology, and then become progressively attracted to a specific professional specialization category, the particular categories in the case of this thesis being clinical, counselling, educational and industrial psychology. How can this 'attraction' or affinity be explained? Or is it preferable to understand specialization in the context of differences? Some, like Grigorenko and Sternberg (1995), believe that the philosophical differences among psychologists may be related to individual differences in their personality factors and cognitive styles. Lochner and Melchert (1997) echo this idea when they investigate the effects of cognitive style and theoretical orientation, while "[d]ifferent approaches have highlighted different factors such as personality, belief systems or general attitudes ...", according to Furnham (1988, p. 613). But whatever the reasons, success in psychology is the ultimate goal. Students with declared majors, like psychology students, exhibit high levels of career certainty. They give evidence of " ... more involvement in clarifying values, interests, and abilities ..." (Gianakos, 1999, p. 247).

As a group, psychology students evidence certain thematic motivations for their choice of career, contributing to a unique professional 'characterization'. Some of the motivational themes are as follows: a prosperous life, including remuneration, career, social recognition/status; a stimulating, active life; a sense of accomplishment or satisfaction; personal growth and development; a world of beauty; equality; and wisdom, or the prospect of achieving increased knowledge and understanding (Furnham, 1988; Solas, 1996). In this discussion however, an important confounding reality is present. Kimble (1992) points out that individuals' proclivities will be instrumental in them finding their way into certain occupations, as psychology majors find their way to the graduate programme of their choice. Once they are there however, " ... a process of socialization takes over. The biases that made the organization attractive in the first place are nurtured and strengthened" (Kimble, 1992, p. 838). Kolb (1984) notes that a professional career choice not only exposes an individual to a specialized learning environment, but that it also involves dedication to a collective professional problem: " ... one becomes a member of a reference group of peers who share a *professional mentality*, a common set of values and beliefs about how one should behave professionally" (p. 88). It is thus the dual process of selection and emphasis that may be responsible for the distribution of characteristics in psychology graduate students.

During graduate training, students are exposed to a broad range of knowledge and methods in research and practice, and over time they develop interests and pursue activities that fit their personal characteristics. The influences of personal

characteristics and training on one another are surely reciprocal. (Conway, 1988, p. 653)

This reciprocity effect then would confirm that students "... find their way into niches in which their epistemic values and personality and cognitive strengths are further nurtured and solidified through a process of socialization" (Conway, 1988, p. 653).

Richter (1992) grounds her reciprocal question in style when she states that it is difficult to determine whether learning style is responsible for choice of educational major or whether educational major actually shapes the students' learning style. The questions can also be asked in the following way: "Are those interests, activities, and work settings determined by professional socialization during training, or are they, at least in part, a function of students' perceptions and goals when they enter their training programmes?" (Tipton & White, 1988, p. 112). According to Witkin (1976), the outcome is undoubtedly a product of both self-selection by students and selection by programme staff.

It is acknowledged that, at the outset, graduate selection in psychology relies heavily on measures of academic potential. Hirschberg and Itkin (1978) posit that the "... first hurdle to be passed for selection would be that of successfully passing a cut-off point on a weighted linear combination of some of the standard admission variables" (p. 1092); these variables include grades. A study done by Chernyshenko and Ones (1999) showed that "... high-scoring individuals have greater probability of succeeding in psychology graduate programs ..." (p. 959). The remaining applicants go on to the next round, where a selection committee now consider and evaluate a specific constellation of traits. Research has identified some of these traits. An overview of representative findings will be presented.

Concerning *psychologists in general*, Super (1957) noted that psychologists showed more concern with interpersonal relationships. Hirschberg and Itkin (1978) found that perseverance and industriousness were identifiable traits, with the need for achievement, conscientiousness and commitment to psychology emerging as important predictors of later success. Costa et al. (1984), using the Neuroticism-Extraversion-Openness (NEO) model of personality, reported high loadings for psychologists on the measure of openness; this cluster measuring areas such as aesthetics, feelings, actions, ideas, and values. Youniss et al. (1985) found academic psychologists to be more theoretical and achievement oriented, whereas the practitioners were more altruistic, person-oriented, and materialistic.

Furnham (1988), using a ranking questionnaire to compare medical, nursing, and psychology students, established that psychology students' ratings showed that they most valued

a world at peace, mature love, imaginativeness, and intellect. Osipow and Fitzgerald (1996) quoted a study done by Sternberg in which psychology students showed strong scientific attitudes in combination with an interest in helping people plus a fairly strong interest in accumulating power and prestige. In exploring psychology interns' preferences for supervision, Lochner and Melchert (1997) found that the interns preferred either task-oriented (behavioural), or relationship-oriented (interpersonally sensitive) supervision. Gottfredson (1999) also cites conscientiousness and initiative as being important dimensions of performance in graduate departments of psychology.

As a group, *clinical psychologists* are very concerned with persons (Super, 1957). Cross (1976) found that graduate students entering this people-oriented profession were significantly field-dependent. Frank (1984) agrees when he states that clinical psychologists of any vocational persuasion are interested in the study of human beings. He makes a distinction though, between 'scientists' and 'humanists', believing that this differentiation reflects differences in personality. The 'scientists', "... have a strong need for autonomy. They tend to be prudent, conventional, and energetic, ...", while the 'humanists' tend to be "extroverted, ambitious and self-centred, impatient ..." (Frank, 1984, p. 421). He further points out that the 'scientific' clinical psychologist tends to have strong abstract abilities, tending towards formalized, objective thinking (field-independent), their thinking showing preference for what is logical, precise, pragmatic, value-free, and structured. 'Humanistic' clinical psychologists, on the other hand, tend to be field-dependent, preferring the imaginative, creative, and personal, with a preference for an intuitive approach, the innovative, and the ambiguous (Frank, 1984). Conway (1988), in quoting Frank's work, added that the clinicians and humanists, concerning their cognitive styles, were found to be higher in the need for nurturance and lower in the needs for achievement and aggression; less autonomous; more emotionally expressive; with a greater internal locus of control; less conventional and pragmatic; more oriented toward feeling than thinking; and less intellectually curious.

In distinguishing between clinicians of three different career orientations (scientists, practitioners, and scientist-practitioners), Conway (1988) ascertained that all placed considerable emphasis on similar characteristics: "... cognitive strengths and conscientiousness in their self-views. Intelligence, openness to experience (curiosity and creativity), specific cognitive strengths related to one's work, and achievement orientation, especially endurance ..." (p. 650). These were viewed as the likely indications of success in a learned profession. Brems and Johnson (1997) reported clinical psychologists as being more employed in medical school settings, and internal causes cited to account for interpersonal differences.

In an analysis of *counselling psychology*, Fitzgerald and Osipow (1986) obtained results which suggested that counselling psychologists are "... strongly practice oriented and appear to see themselves as engaged in psychotherapy and traditional 'clinical' activities with a reduced emphasis on vocational, academic and research-focussed behaviors" (p. 535). Beginning graduate students participating in a study indicated that the strongest influencing factor affecting their choice was their entrepreneurial interests, that is, the pursuit of a career that offered the promise of financial reward and professional independence (Tipton & White, 1988). The second salient factor was their desire to be of service to people, with an important inducement also being the ability to do research on human behaviour. The participants defined the functions and roles of counselling psychologists along rather traditional lines, emphasizing such areas as growth, development, prevention, and goal-directed counselling. As a general career goal they expressed a strong preference for going into private practice.

According to a study done by Brems and Johnson (1997), counselling psychologists were engaged in three types of service activities in particular, namely group therapy, career counselling, and testing, which corresponded with the fact that they reported employment especially at university counselling centres. These psychologists also endorsed humanistic / person-centred approaches, emphasizing social causes in accounting for interpersonal services.

In the discussion of the specialization fields in psychology, it is at this point difficult to ignore the reality of the 'clinical psychology versus counselling psychology' debate. Literature, in an ever more recurring manner, questions the ever present issue of *identity*, which aligns with one of the core questions asked in this thesis: are psychologists as a group more similar than different? Already as far back as 1957, Super and Bachrach (as cited in Osipow & Fitzgerald, 1996), pointed out that "... it is futile to look for personality trait differences among members of different occupations because too much overlap exists and occupations tolerate a wide range of personality differences among their members" (p. 192). If this was believed true of different occupations, how much more true is it of a single occupation with somewhat disputable specialization fields?

Watkins (1983) cites the seeming convergences of clinical and counselling psychology: basic core curriculums and training and internship models; and work places and activities in which the provision of services are offered in increasingly similar settings in an increasingly similar manner. The conclusion would appear to be that "... both speciality areas are converging in a number of ways and diverging less and less" (Watkins, 1983, p. 88). Wachowiak and Simono (1996) provide a practical example when they comment that counselling centres are

finding more pathology in their clientele, with staff performing more clinical assessments and crisis intervention, necessitating many centres to adopt a more remedial and clinical orientation. "Simultaneously, more and more counselling psychologists appear headed into clinical settings ..." (Wachowiak & Simono, 1996, p. 499).

Brems and Johnson (1997) also specifically address the clinical / counselling controversy, citing their survey which concluded that training differences in clinical and counselling doctoral programmes were disappearing, and that intragroup differences were as great or greater than intergroup differences, confirming the narrowing of the gap between the two fields. The similarities between these two groups highlight the arbitrariness of the continuing differentiation and maintenance of distinct boundaries between these two so-called 'specialities'. The perpetuation of these two registration categories may be grounded in history, stereotypes, and 'territory' issues.

Norcross, Sayette, Mayne, Karg, and Turkson (1998), in addressing PhD Counselling, PhD Clinical, and PsyD Clinical programmes in professional psychology, likewise note that the distinctions between clinical and counselling psychology seems to have faded in recent years, proof of this being that the American Psychological Association (APA) ceased distinguishing, quite some time ago already, between clinical and counselling psychology internships. Their final recommendation reads very clearly: "With the considerable overlap in ... programs, qualified students should be encouraged to consider all options and then to tailor their applications to one or more specializations that match their academic credentials, research interests, career trajectories, financial needs, and theoretical orientations" (Norcross et al., 1998, pp. 613, 614).

In the course of their training, *educational psychologists* are teachers before they are psychologists. This would appear to suggest parallel sets of traits or characteristics. The duality merges however, in the reality of their applied area of work - the education setting. Biehler and Snowman (1995), describe some of these 'combined' characteristics: flexibility, which entails the ability to choose and formulate appropriately, communicate emotions and interest in a variety of ways, improvisation, willingness and resourcefulness to work around hindrances; and reflectiveness, which incorporates an introspective orientation, an open-minded yet questioning attitude, willingness to take responsibility for decisions and actions, and the ability to view situations from others' perspectives. Other researchers concur concerning the importance of flexibility or fluidity, and emphasize the significance of being a good listener (Anthony, 1999; Gulliford, 1999); while Bozic (1999) highlights the qualities of intuitiveness and systematism.

De Wolff (1984) observes that *industrial psychologists*, as a professional group, are characterized by a “ ... special attitude and a special social position” (p. 54). This attitude is composed of personal involvement, vocation, dedication, a sense of duty, and a belief in service to the public, while the social aspect is expressed through the possession of a high degree of authority and making an important contribution to society. Spector (1996) links industrial psychologists’ distinctiveness to some principles contained within the APA ethical code: competence, integrity, responsibility, respect for individuals’ rights and dignity, concern for others’ welfare, and social responsibility. As part of his descriptive profile, Highhouse (1999) mentions the possession of mature judgment, the need for a flexible attitude, and traits like “ ... stability, intelligence, ability to listen, ‘sparkling’ personality, and sense of humor” (p. 327).

It is to be noted that although the discussions concerning the characteristics of the psychologists representing these four specialization categories have been conducted separately, it will be evident to the discerning reader that all of these so-called definitive characteristics can again be applied to *any* psychologist, or psychologists in general (see p. 47), no matter what their registration category. This implies a general underlying similarity as far as all psychologists are concerned.

It is apparent, from the foregoing discussion, that vocational choice, and the characteristics represented by individual occupations or even occupational specializations, remains a complicated issue. There are numerous factors that may or must be taken into account. Furnham (1988) aptly notes that “... value differences alone can never solely account for vocational choice as both values and choice are mediated by other considerations, some internal to the student (ability, intelligence, personality) and some external (money, geography, etc.)” (p. 617).

The expansive relevance of Gregorc’s mind style philosophy again begs attention at this juncture. Fundamental to the development of the characteristics of style is the belief that individuals possess internal subjective patterns of learning, as well as specific physical, emotional, and mental qualities that are unique (Gregorc, 1982a). If psychologists, as a unified group, exhibit a shared or defining uniqueness, there are significant inferences implicit in selection processes. Sternberg (1997), a known supporter of *style*, directs attention to some implications of style when he states: “The styles for which we select are often not those that lead to success in a given field” (p. 14). He explains as follows:

A style is a preferred way of thinking. It is not an ability, but rather how we use the abilities we have. We do not have a style, but rather a profile of styles. ... people whose styles match those expected in certain situations are judged as

having higher levels of abilities, despite the fact that what is present is not ability, but fit between those people's styles and the tasks they are confronting. (Sternberg, 1997, p. 19)

Because of the 'forced' categorization and selection in psychology, "... how many students have been derailed from advanced training in their field of interest, who really might have made excellent psychologists ...?" (Sternberg, 1997, p. 14). This is indeed a sobering question, Would it ever be possible to credit the power of self-selection, the uniquely natural way in which individuals approach career decision-making? Blustein and Phillips (1988) point out that there are two common dimensions of individual stylistic differences evident across taxonomies.

The first of these is reflected in the extent to which the individual approaches decisions in a thinking-oriented, rational, and deliberate manner, as opposed to a feeling-oriented, emotional and impulsive manner. The second dimension is reflected in the extent to which the decider maintains an internally derived, active, and involved posture toward the decision-making task, versus a passive, dependent posture. (p. 205)

The Gregorc mind styles components are implicit here: Concrete, Sequential, Abstract, and Random.

2.6 South African psychology

2.6.1 Introduction

Psychology is typically characterized, internationally and locally, as being a *helping* profession. This image of the discipline has been defined and described in numerous ways. The following proposed mission statement effectively captures what such a profession entails:

Psychology and psychologists are committed:

- to the pursuit of knowledge and research to improve our understanding of human nature and behaviour;
- to the application of such knowledge and specific skills to prevent, alleviate and treat human problems;
- to promote to optimum psychological development of individuals and communities;
- to assist in future planning so that due regard is paid to the psychological needs and aspirations of people;
- to adhere to the Ethical Code for Psychologists and to the spirit of concern and responsibility which underlies it. (Gerdes, 1992, p. 41)

The story of psychology is both general and specific. There exists a basic, universally agreed upon account of the sequence of the history and systems of psychology. There also exists as many 'histories' as there are places in the world where psychology is practiced. South Africa is no exception. South Africa shares a reality with many developing countries however, of initially

inheriting the powerful influence of Euro-American psychological thinking before cultivating an own, culture-specific paradigm. A brief, contemporaneous chronological overview will be presented in order to gauge the past and current nature of South African psychology and psychologists.

2.6.2 An applied overview

In a much-to-be quoted article, Raubenheimer (1981) presented a quite optimistic overall view of South African psychology. Later critics would describe it as a "... rather credulous overview of South African psychology ..." (Richter et al., 1998, p. 1). Raubenheimer (1981) highlighted the outstanding development in South African psychology since its establishment in the 1920s. As a point of interest for this thesis, however, Raubenheimer noted the condition of 'disintegration' South African psychology was in at the time when he stated: "... South Africans are attempting to ... promote psychology in its endeavour to become an integrated science of human behaviour" (Raubenheimer, 1981, p. 4). The statement gains significance in the light of his speculation concerning the future position of psychology in South Africa at the conclusion of the 20th century, and in his 'future' wish for *our* time. "May psychologists in South Africa realize, in the decades ahead, that there is much to be gained from closer cooperation" (Raubenheimer, 1981, p. 5).

Mauer (1987), representative of the particular time of writing, questioned the social relevance of South African psychology. He made the point that psychology in developing countries "... must be socially relevant if its existence is to be justified" (p. 84), adding that South African psychologists did not have that impressive a record of dealing with social issues. Moreover, he seriously urged the development of a socially relevant South African psychology, a commitment to "... the pursuit of a socially relevant discipline" (Mauer, 1987, p. 91).

Nell (1990) directly addressed the relevance of South African psychology, drawing attention to the following salient point: the adherence to an exclusively Western approach to psychology in a country situated on the African continent; the fact that South African students are not exposed to the elements unique to African psychology, and therefore not promoting the formation of a truly indigenous psychology; and the development of "... contexts that are meaningful to clients with different values and expectations" (p. 131). The author presented a synopsis of the international 'psychology as unitary or fragmented' debate (see section 2.5.2), clearly aligning himself with the opinion supporting the *unitary* nature of psychology: "... it is argued that relevance is to be achieved not through the creation of separate psychologies ... but

by applications of the one psychology we all know to the unique here-and-now problems facing planners in and the populations of the developing countries" (Nell, 1990, p. 137). The single, universal psychology is thus present in South Africa.

Gerdes (1992) noted that the profession of psychology in South Africa only gained momentum during the last thirty years. "We could perhaps say that ... psychology has left its infancy and childhood behind but is still far from reaching its full potential. It is at present grappling with problems of identity which suggests that it has reached adolescence and is moving toward maturity" (p. 39). She also warned against the danger of fragmentation, which could lead to imbalance, and instead appealed for better integration within the local discipline. Kriegler (1993) pointed out that psychology " ... is faced with the real challenge to set down powerful roots in South Africa, bearing in mind that the profession has not succeeded in doing this anywhere else in Africa" (p. 69). The counteraction of fragmentation is necessary to meet this challenge.

Nhlapo (1997) ascribed an important role to psychology in South Africa, namely the making of constructive contributions during the transitional phase the country was in, or, the need for a " ... multicultural and politically relevant psychology for our nation" (p. 39). This author further characterized South African psychology, at that point in time, as being " ... intensely introspective as it realises its limitations and its inability to maximally serve the people of the new South Africa in its present condition" (Nhlapo, 1997, p. 39).

Richter et al. (1998) noted the danger of South African psychology, as discipline and profession, of not engaging in " ... self-reflective research and analysis ..." (p. 1). The authors identified two definitive periods in the course of their research: the first decade (ending approximately 1984 / 1986) represented a psychology " ... that was largely unselfconscious of its position in a highly politicised society", while the second decade (starting around 1984 / 1985), was " ... a period in which psychologists began to acknowledge and express their protest, anxiety and sometimes shame about psychology's relevance in a society quite obviously surging towards democracy" (Richter et al., 1998, p. 1). It was clear to the authors that a new 'beyond anxiety' period was commencing, but this did not change the fact that South African psychology was deemed to be " ... generally irrelevant and inadequate, both ideologically and programmatically, to meet the social needs of South Africans in our current state of development" (Richter et al., 1998, p. 3).

Yet another article (Wilson, Richter, Durrheim, Surendorff, & Asafo-Agyei, 1999), questioned the relevance and the future of South African psychology, citing Holdstock's 1981

statement: "Psychology must certainly rate as one of the most irrelevant endeavours in South Africa today" (p. 184), while Viljoen, Beukes, and Louw (1999) noted that all the recent changes in the profession necessitated the rendering of more relevant services.

Marchetti-Mercer and Cleaver (2000) expressed the view that South African psychologists have to " ... adjust their perspectives and working methods to accommodate the needs of a multicultural society" (p. 61), supporting this statement by pointing out that the Eurocentric approach has been contested by a strong claim for an approach that is Afrocentric, an approach that would be more representative of the traditions and values of our country.

It is perhaps fitting at this point to refer to some recent observations of the 2001 President of the Psychological Society of South Africa (PsySSA). Commenting on issues that psychologists worldwide are facing, the following is of note: " ... change and its impact on our discipline", and the issue of " ... unifying a diverse discipline which is increasingly developing specialised fields of work and hence interests" (Watts, 2001, p. 3). The ensuing quote can surely be accepted as indicative of the current 'state' of psychology in South Africa, as well as a wish for the future:

In South Africa the situation has historically been compounded by racial and language divides. This has led to fragmentation and antagonism within the profession, which weakens our discipline. If we as scientists of human behaviour are to be respected and to play a vital role in all facets of our society, then we need to unite as a discipline. United we have the collective strength and power to enhance the interests of all psychologists on all levels. (Watts, 2001, p. 3)

2.6.3 The efficacy of South African psychology

The call for psychology in South Africa to be relevant has powerfully come down through the decades. Any degree of irrelevancy immediately suggests the issue of utility, which in turn directs the attention to the goal of psychology - to be an *efficient* helping profession. Any " ... difficulties which hinder the better utilization of psychology and psychologists" (Gerdes, 1992, p. 39), must be addressed. This thesis would like to suggest that two factors in particular could influence these 'difficulties' - most notably the difficulty of the unity of the discipline: the selection process, and the perpetuation of 'exclusive' registration categories. These factors maintain the notion that different types of psychologists are more dissimilar than alike, each exhibiting characteristics definitive of their specialization category. These two factors will be briefly discussed.

South African psychology students may apply for selection into five graduate training or registration categories: clinical, counselling, educational, industrial, and academic and research psychology. These five categories represent the five institutes that enjoy representation at PsySSA,

the Psychological Society of South Africa. Ten special-interest divisions are also represented at PsySSA, further proof of the diversification of interest in the local field of psychology (Muchinsky, Kriek, & Schreuder, 1998). A “scientific-professional” training model is the preferred model, which is a “combination of academic, practical, and research training ...” (Van der Westhuyzen & Plug, 1987, p. 165). In order to be selected into such a training programme, whatever the category, the following process, followed by most departments, must be traversed:

- Stage 1.* Application form
Candidates write a brief autobiography
Reports by referees
- Stage 2.* Personal interview
Observation of applicants' interpersonal skills in role play and leaderless groups
Personality assessment
Presentation and evaluation of cases by applicants
Evaluation of video-taped therapeutic interviews by applicants
- Stage 3.* Final selection panel (Van der Westhuyzen & Plug, 1987, p. 167)

The authors noted that, over all, the admission requirements for professional training were very similar across most departments:

In practically all cases these were (a) a good academic record, (b) adequate interpersonal skills, and (c) a personality characterized by sensitivity, openness, flexibility, empathy, warmth, internal congruence, maturity / stability, ability to deal with anxiety and conflict, and acceptable values. In some cases applicants' motivation and previous practical experience were also taken into account. (Van der Westhuyzen & Plug, 1987, p. 167)

Chippendall and Watts (1999), in their study of selector's pre-eminent assumptions underlying the admission of candidates (clinical psychology), identified the following core categories: a secure sense of self; flexibility, libidinal investments in others; and academic ability. Marchetti-Mercer and Cleaver (2000) concur when they list “ ... flexibility, acceptance of others, and open-mindedness ...” (p. 62), as being important criteria for selection (clinical and counselling psychology).

It can be assumed that during selection procedures each selection committee scrutinizes the applicants for the ‘extent’ to which they *fit* the particular category's profile, they themselves being steeped in its ‘characterizations’. Could this not compel differentiation, a perhaps unconscious moulding or shaping of the pre-existing qualities of the candidate to fit the category? Although this question is not included in the scope of this thesis, it does reiterate a pervading theme in section 2.4: individuals are ‘naturally ‘ inclined to select occupations that best *match* them. If this fundamental reality is allowed and operationalized, it could possibly be a most useful guiding principle to be added into the selection equation.

The various categories of registration in South African psychology have been a much-debated topic for many years. It has been the primary (and at times an 'evolving' secondary) topic of discussion for a number of theses and dissertations, two examples being those of James (1992), and Du Toit (1992). James (1992) cited the following as a study motivation: "One of the current tendencies within the profession that indicates this increased need to review the careers, and the role, of psychologists, is the debate about re-defining the various categories of registration" (p. 4). The author further notes:

The crisis within the present occupational culture is depicted by the continuing debates ..., about the validity of its existence within the changing needs of South Africa's socio-political system. This, as psychologists seek to redefine their professional structure. Category of registration is but one facet of this structure. (James, 1992, p. 113)

Du Toit's (1992) thesis, 'The registration of psychologists in South Africa', makes a salient contribution to the discussion of whether South Africa can "... afford to have 5 different types of psychology ... which duplicate functions and emphasize the divisions in the profession ..." (Prinsloo, 1990, as cited in Du Toit, 1992, p. 4). The thesis prominently addressed the conflict caused by the current registration category system. In South Africa, following international trends, specialization or differentiation came about in the first half of the 1900s, accompanied by both positive and negative realizations: "... increased esteem, prestige and remuneration for some subdivisions but also, naturally, by increased intradisciplinary conflict and competition" (Du Toit, 1992, p. 10), resulting in the maintenance of "... false boundaries between psychologists ..." as Jacobs (1990) termed it (as cited in Du Toit, 1992, p. 13).

Other South African commentators use even stronger language in expressing themselves regarding the profession's predicament: "Organized psychology is paralysed by divisions along ideological lines and between registration categories", resulting in "... ideological schisms ..., ... not to mention the petty rivalries between 'categories' ..." (Kriegler, 1993, pp. 66, 68). Richter et al. (1998) note that psychologists register in one of several categories which, "... although they have no statutory legitimacy, have strong guild-like characteristics and draw firm borders between their areas of practice" (p.1). The efficacy of a discipline has to be highly questionable when "... there are other barriers to professional flexibility, which include the entrenchment of boundaries to protect both interprofessional and intraprofessional interests ..." (Richter et al., 1998, p. 3). The authors strongly conclude when they accuse professional psychologists of being preoccupied with "... distinctions and boundaries between areas of practice ..., ... that arises mainly from territorial marking in the domain of private practice" (Richter et al., 1998, p. 6).

A sample of the most representative instances will be presented at this point, which evidence the “permeable” (Viljoen et al., 1999, p. 205) nature of the boundaries between the categories of registration. Perhaps the most heated issue, both locally and abroad, concerns the overlap of the clinical and counselling categories. Du Toit (1992) terms the difference “... diffuse and irrelevant” (p. 4), the reason being the academic similarity in the masters training courses, thus “... making the category differentiation arbitrary” (p. 23). Fourie (1995), clearly states that at the University of South Africa (Unisa), the MA courses for Clinical and Counselling Psychology are “identical” (p. 51). The author cites the following reasons: “... a point was soon reached at which it became difficult in practice to distinguish between the types of clients seen by clinical and counselling psychologists”, from which the logical deduction can be made that “... the type of work a psychologist does is determined by the setting in which he/she works, rather than by a difference in skills and training” (Fourie, 1995, p. 51). Pillay and Peterson (1996) similarly note that Clinical and Counselling Psychologists “... overlap in practice patterns and types of problems seen ...” and that “this “... suggests the need for a review of the separate training and registration categories of Clinical and Counselling, and research into the efficacy and quality of their practice” (p. 79).

In an evaluative study conducted at the University of the Free State involving clinical, counselling, and educational psychology (Viljoen et al., 1999), support was found for an ‘integrated course’ because of the wide range of problems often reported in a single client or patient. The researchers finally inferred:

The participants experienced the problem that their work in practice does not uphold the distinctions among the categories of registration. Approximately 80% of the participants held the view that the work they performed, overlapped to a large extent with the work done by psychologists in other categories of registration. (Viljoen et al., 1999, p. 208)

Further issues include the following: training, and therefore practice parameters of Educational Psychologists; the questionable status of Research Psychology as an independent category; and whether Industrial Psychology should be placed under the control of the business community, thus removing it from the registration system (Du Toit, 1992).

At the conclusion of this section the following is certain: “The practice of psychology in South Africa currently depends on a high level of qualification and is reserved within professional registration” (Richter et al., 1998, p. 1). The reality of the ‘state of being’ of South African psychology poses a serious threat to its relevance and its efficaciousness - its *helping* mission. “The psychological profession needs to address the extent to which the category system is useful for the

development and growth of the profession ..." (Richter et al., 1998, p. 6).

The limitations inherent in the profession's selection process and its registration category system seriously undermines the utility of its full worth. If individuals are 'typed' into particular categories, an immense amount of freedom is surrendered.

We come, again, full circle to Gregorc's notion of *style*, a potentially invaluable voice in the debate of whether psychologists are more different than similar. Since styles are the products of the mind and psyche, and therefore the external manifestations of characteristics (Gregorc, 1985), mind style evidence of non-differentiation among psychologists should overwhelmingly sway the vote in support of *similitude*.

2.7 Summary

In this chapter, the theory of Anthony Gregorc was discussed, including the two theorists having had a strong influence on the development of the Mind Styles model, Carl Jung and David Kolb. An overview was given of the writings and research commenting on or using Gregorc's theory. A brief summary of theories of occupational choice and career development was supplied as it pertained to the existence and influence of style. Psychology as discipline and profession, both internationally and in South Africa was also discussed. From within this framework then, this study will attempt to explore the idea that mind style specialization exists among various groups of registration categories in South African psychology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the type of research, research problems and questions, the sample and its selection, instrumentation, procedure, and statistical techniques used.

3.2 Research design

In order to achieve the main objective of this study, a differential research design was employed (Graziano & Raulin, 2000). The subjects were examined in their groups on the basis of a pre-existing characteristic (registration in one of four psychology masters programmes), and compared by measuring mind style, the variable of interest. The variables were in no way directly manipulated. The gathering of data was done in a consistent manner in order to avoid confounding as far as possible.

3.3 Research problems and questions

This research will attempt to address the following main research problem:

Is there an alignment between Gregorc's four mind styles (Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random), and the following specialization areas of study and categories of registration in South African psychology: clinical, counselling, educational, and industrial psychology?

This study will also attempt to address the following secondary research problems:

- Is there any significant interaction effect between the words comprising the Gregorc Style Delineator and the four study groupings?
- Can any group-specific reasons be distinguished regarding the choice of specialization areas of study?

These research problems can be operationalized in the following specific research questions:

1. What are the mind styles of four groups of psychology masters students registered at the University of Stellenbosch for the following specialization courses of study: clinical, counselling, educational, and industrial psychology?
2. Are there any significant differences in the mind style preferences between the groups of students representing the four specialization areas of study and, and therefore the categories of registration in South African psychology?

3. Do the four groups differ regarding the mean ranks 'ascribed' to the Gregorc Style Delineator words?
4. Does any correlation exist between the words of the Gregorc Style Delineator and the four mind style groups?
5. Can distinguishing reasons of choice be discerned for each of the four specialization groups?

3.4 Sample

Psychology masters students registered at the University of Stellenbosch were involved in this study. The sample consisted of a total of 68 subjects, including 48 women and 20 men. The majority of the subjects (52,94%) were in the age category of 20-29, with 33,82% representing the 30-39 category, and 13,24% representing the age category of 40-49.

Fourteen (20,59%) of the subjects majored in Clinical Psychology; 22 (32,35%) of the subjects majored in Counselling Psychology; 19 (27,94%) of the subjects majored in Educational Psychology; and 13 (19,12%) of the subjects majored in Industrial Psychology. At the time of the study, no students were registered for the masters programme in Research Psychology, thus necessitating the exclusion of this fifth specialization and registration category in South African psychology for the purpose of this study.

Divisions in year of study further characterized the sample, the divisions being as follows:

MI: First year masters students (Group 1);

MII: Second year masters students, and students working on their theses after completing their internships (Group 2).

3.5 Instrumentation

Two instruments were used to collect data for this study: A Biographical and Information Questionnaire, and the Gregorc Style Delineator. These measures are more fully described below.

3.5.1 Biographical and Information Questionnaire

The researcher constructed a biographical and information questionnaire in order to obtain pertinent data and related demographic variables of interest. Information was acquired regarding the following: specialization course and year of study; contact details; gender; age; marital status; nationality; home language; qualifications; work experience and training; motivation for pursuing current course of study, together with an indication of whether this course of study was the subject's first choice, with

opportunity to express reasons if this was not the case.

A copy of the questionnaire can be found in Appendix 2.

3.5.2 The Gregorc Style Delineator

The Style Delineator was the primary measurement instrument utilized in this study, and will now be fully discussed.

3.5.2.1 Purpose

Gregorc (1982b) developed the Style Delineator as a self-analysis tool. "It was specifically designed to aid an individual to recognize and identify the channels through which he/she receives and expresses information efficiently, economically, and effectively" (p. 1). The channels provide individuals with 'mediation abilities', and the outward appearance of these mediation abilities is what is termed "style". The Style Delineator was designed to help people "get in touch with themselves and take responsibility for the world they create inside and outside" (Gregorc, 1985, p. 147), to bypass outer behaviours to reveal inside qualities. It therefore measures the perceptual qualities of concreteness and abstractness in their combined forms of Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random. These compounds yield four dimensions of space and time within which we establish reality. By using this psycholinguistic approach, and an association testing with antinomies, the individual's ability and capacity for accessing various planes can be shown. It is thus a *noumenal* tool designed to aid an individual in looking inside - therefore a self-assessment tool (Gregorc, 1985).

3.5.2.2 History

The Style Delineator is a product of Gregorc's 'evolution of thought' that began in the 1970s (see section 2.2). After studying various psychological approaches, 'stylistic' behaviours and their causes, and personality types (Jung), he decided to use the qualitative research methodology of phenomenology to address his question. Over a period of eleven years "the techniques of phenomenology and . . . psychological forces were combined with the theory and research on styles to develop a means of addressing the questions of how, why, and what individuals can, will, and do learn" (1982b, p. 1). The instrument that emerged was the Gregorc Style Delineator.

3.5.2.3 Development

During Gregorc's experiences as a school administrator, several interviews and observations revealed that children and adults varied in their means and abilities of learning any given content. This

realization led to a search for reasons and the desire to formalize the interviews and observations in a scientifically credible way. An ideographic methodology was required, one that would inspire an individual to reflect upon his learning experiences and disclose his perceptions of these experiences and their effect on him. The phenomenological approach offered a semi-structured interview, a technique which would uncover previously unrecognized, underlying causes while at the same time allowing validation (Gregorc, 1982a; 1982b).

Over a seven-year period more than 400 individuals were involved in the initial research, resulting in the Transaction Ability Inventory (1978). Data was gathered through taped interviews and written protocols - documents written by the individuals and documents written by Gregorc describing what happened in the semi-structured interviews. The main selection criterion was willingness to share, with anonymity assured.

The interviews were designed to elicit the individuals' perceptions about 'style' in particular, and behaviour in general. Actual experiences (specific verbal and non-verbal behaviours, mannerisms, situational characteristics, or noema) were focussed on first, then the individuals' reflection on the experiences (questions of importance, impact, meanings and whys of the noema - noesis). Various interconnecting themes emerged from which primary 'driving forces' of perception and ordering were identified, which in turn gave rise to the outer behaviour and experiences of an individual. These findings led to the development of the 1979 'ORGANON Model of the Mind' (Gregorc, 1982a; 1982b).

The findings (generated by the compilation of the data), specifically pertinent to the development of the Gregorc Style Delineator are as follows:

- | | |
|--------------------|---|
| DRIVING FORCES | <ul style="list-style-type: none"> ▶ A perceptual space duality of concrete/abstract qualities. ▶ An ordering duality of sequential/random qualities. ▶ The identification of four reasonably distinct combinations of the dualities of polar opposites: Concrete Sequential / Abstract Random and Concrete Random / Abstract Sequential channels. |
| EIDETIC REDUCTIONS | <ul style="list-style-type: none"> ▶ Divisional frames of reference. |
| NOESIS | <ul style="list-style-type: none"> ▶ Words for the Gregorc Style Delineator. |
| NOEMA | <ul style="list-style-type: none"> ▶ Stylistic descriptors in each division. |

(Gregorc, 1982b, pp. 3, 4).

3.5.2.4 Instrument Design

The Gregorc Style Delineator is the product of an amalgamation of two methodological approaches. A qualitative approach was used to identify baseline data, while a quantitative approach was used to verify general validity (Gregorc, 1985). With the Style Delineator, Gregorc attempted to disclose invisible metaphysical forces through a physical instrument. As in his decision to use phenomenological methodology, many sources contributed to the creation of the original 1978 Transaction Ability Inventory, and the present Gregorc Style Delineator. The 'dualities' concept can be traced throughout history and literature, as also the idea of the organization of two opposing sets of ideas, concepts as symbols, displayed in the quaternary design.

i. The Quaternary design

Carl Jung initially used the quaternary design to present his concepts of the psychological types. Jung's thinking and general approach clearly had a great influence on Gregorc (see section 2.1). He strongly agreed with Jung that "two opposites ideationally or psychologically could not be adequately solved without being compared with another set of opposites relevant to the first set" (Darling & Oliver, as cited in Gregorc, 1982b, pp. 4, 5). Gregorc found some corroboration between his and Jung's findings, due in part to commonalities between their use of the phenomenological approach and similarity in mindset, yet some differences were also present due to differences in definitions, dualities and perceptions.

ii. The format

Words rather than descriptive phrases were used because "semanticists have shown that different concepts and constructs are conveyed by shades of meanings of words" (Gregorc, 1982a, p. 45). Jung also found that a single word could elicit whole complexes, which have an attraction and repulsion impact on an individual (Gregorc, 1985). Whereas statements are thus often content specific, single words can generate whole complexes, providing a general domain to attract like minds. The Delineator requires the individual to actively connect words with personal thoughts and feelings. "It prompts to life, or to light, something that has been seen, heard, felt or experienced" (Gregorc, 1985, p. 154). The intensity of the association is measured by ranking the words in descending order.

The Style Delineator was also modeled, in part, on David Kolb's instrument, the Learning Style Inventory (LSI, as discussed in section 2.1.2). Kolb used words to delineate two sets of dualities, using his experiential theory to address the dualities of abstraction/concreteness and impulsivity/reflection, also in a quaternary design. Gregorc's instrument is thus built in Kolb's initial four column format and design, resulting in the present Delineator format (Gregorc, 1982b).

Gregorc describes his instrument as follows: "The Delineator asks the subject to rank four words

at a time. The four words are in a vertical column and each word is part of a horizontal row which represents a particular mediation channel: Concrete Sequential, Abstract Sequential, Abstract Random and Concrete Random" (1982b, p. 6). Gregorc's cited reason for using this particular format for the word matrix is because of self-administered scoring convenience for individuals as well as large groups. The format was tested by constructing the instrument with all the words in random order and subsequently asking subjects to rate each item on a 1 to 7 scale. Correlations between the ratings and the attributes ratings were: 0,85 for CS; 0,72 for AS; 0,82 for AR; and 0,86 for CR (n=100, p<0,001); all highly significant and very similar to the present instrument (Gregorc, 1982b).

The Style Profile, used to graph the matrix scores for the Delineator, was designed to depict the polar oppositions of Concrete Sequential/Abstract Random and Concrete Random/Abstract Sequential (Gregorc, 1982b).

iii. Selection of words

The words selected for the 1978 edition of the Style Delineator (the Transaction Ability Inventory), were derived from the actual language patterns of those individuals (involved in educational institutions) scoring 27 points or more and thus indicating a dominant style. Each of the four style categories was represented. The chosen words elicited intellectual and emotional impact, and conveyed strong connotative values (Gregorc, 1982b). The words for the revised edition, the Gregorc Style Delineator (1982a) were generated by 60 adults from private industry. "This population addressed the 1978 list of words and provided a perspective which removed words which could be considered jargon associated with the educational field" (1982a, p. 46). Their choices of words were then subjected to similar procedures as used in the 1978 edition. The words in the Delineator are not parallel in construction and are not all adjectives or nouns; their chief aim is to tap into the unconscious, and to discourage and reduce the use of linear logic - an individual's natural responses are sought.

iv. Scoring

The scoring continuum was divided into high-third, middle-third, and low-third, with a final adjustment after a series of interviews. The scoring range was thus demarcated as follows:

High "Pointy-Head"	> 27 - 40 points
Intermediate "Moderate"	> 16 - 26 points
Low "Stubby Point"	> 10 - 15 points (Gregorc, 1982b, p. 7)

Twenty-seven is therefore the break-off point that indicates pointy-headedness, or dominance. There is a "quantum jump displayed in behavioral characteristics at that number" (Gregorc, 1985, p. 160). The other major break-off point is at 15 points or below. People with scores at this end of the continuum exhibit very few of the style characteristics associated with the particular channel.

3.5.2.5 Validity and predictive validity

Two aspects of validity are pertinent when discussing the Gregorc Style Delineator. The first is *construct validity*. The Delineator focuses on the characteristics of individuals, the characteristics specifically referring to how individuals think about themselves and the world around them. Gregorc uses the following definition of 'construct': "To the extent that a variable is abstract rather than concrete, we speak of it as being a construct" (Nunnally, as cited in Gregorc, 1982b, p. 9).

Four constructs are identifiable in the Style Delineator. The constructs are labeled as follows: Concrete Sequential (CS), Abstract Sequential (AS), Abstract Random (AR), Concrete Random (CR). The constructs were labeled for convenience, and might seem somewhat 'elementary'. Yet each construct is more complicated than the convenience label suggests, exhibiting meanings that serve as guides to readers, instrument users, or any person wishing to understand the constructs (Gregorc, 1982b).

The second aspect of validity pertinent to the Delineator is *predictive validity*. The Style Delineator describes the degree to which an individual sees himself in relationship to each of the four constructs. "An individual can be high or low in one or all four of the scales representing the constructs. When an individual is high on a particular construct, the theory of the Style Delineator suggests that specific characteristics can be attributed to that individual" (Gregorc, 1982b, p. 9).

Although the attributed characteristics were unweighted at the time, Gregorc used the attributes of individuals who scored high on a particular construct (CS, AS, AR or CR), as criteria for testing the predictive validity of the theory of the Gregorc Style Delineator, since part of the stated purpose of the Delineator is to predict the characteristics attributable to the individual. Gregorc again quotes Nunnally on this point: "Predictive validity is at issue when the purpose is to use an instrument to estimate some important form of behaviour that is external to the measuring instrument itself, the latter being referred to as the criterion (1982b, p. 10).

Predictive validity in this case is therefore the study of the relationships between the scores on the Gregorc Style Delineator and the scores on self-ratings of characteristics attributed to individuals. Gregorc presented the relationships described between these two sets of scores as correlation coefficients, also referred to as validity coefficients. Gregorc tested the following null hypothesis: "No significant relationship at the $P < 0,01$ level exists between Gregorc Style Delineator scores and the attribute scores generated by individuals rating themselves on the characteristics attributed to individuals classified by the Gregorc Style Delineator" (1982b, p. 21).

In order to test this hypothesis the Gregorc Style Delineator was administered to 110 adults (the First Test). The subjects were also required to respond to a list of 40 selected characteristics

theoretically attributed to individuals classified by the Gregorc Style Delineator (the Second Test). The attributed characteristics were presented in a random list of 40 items, yet still representing the four domains corresponding to Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random. Gregorc reported significant correlation coefficients, well beyond the $p < 0,01$ level, or even the $p < 0,001$ level. The coefficients ranged from 0,55 for the Concrete Random on the First Test to 0,76 for Abstract Sequential on the Second Test, thus supporting the statement that the predictive validity is moderately strong (Gregorc, 1982b).

Gregorc conducted a further study in order to ascertain confirmation of attributes, or put another way, to answer the following key phenomenological question: "To what degree do individuals classified as Concrete Sequential, Abstract Sequential, Abstract Random, or Concrete Random agree that characteristics attributed to individuals in their classification actually fit them?" (1982b, p. 24). The Gregorc Style Delineator was administered to 475 subjects, after which the subjects were asked to rate themselves on a scale from 1 to 5 ("1" - strongly agree, "2" - agree, "3" - unsure, "4" - disagree, "5" - strongly disagree) as to the degree to which they agreed with a list of characteristics attributed to the classification yielded by the Delineator.

A frequency analysis showed that 31% (146 subjects) strongly agreed, while 58% (278 subjects) agreed, thus indicating that the characteristics theoretically attributed to classifications in which they found themselves according to the Gregorc Style Delineator, represented them rather well (Gregorc, 1982b).

3.5.2.6 Reliability

Construct validity and reliability are both related to the internal consistency of the measures of the Gregorc Style Delineator. After outlining the domain of observables (part of construct validity), 'testing' becomes important. Nunnally (as cited in Gregorc, 1982b, p. 17) states the following: "The way to test the adequacy of the outline of a domain relating to a construct is to determine how well the measures of observables 'go together' in empirical investigations".

In the investigation of the reliability of the Gregorc Style Delineator, two kinds of reliability were examined, namely internal consistency and stability. It is noted that the internal consistency of a scale within a test or of a domain is both an aspect of construct validity and reliability. Gregorc used the standardized alpha to represent internal consistency. He used the following two questions to direct the study: "To what extent do the four scales of the Gregorc Style Delineator exhibit internal consistency as represented by a standardized alpha coefficient?", and, "To what extent do Gregorc Style Delineator scores elicited from a group of individuals on one occasion predict scores elicited at a second

occasion?" (1982b, pp. 17, 18).

Results were obtained from 110 subjects, who took the Gregorc Style Delineator on two occasions, ranging from six hours to about eight weeks. In order to address the first question, a standardized alpha coefficient was calculated for each of the four scales in each of the two tests administered. The first question was satisfactorily answered in that the calculated standardized alpha coefficients revealed were all strong. The coefficients ranged from 0,89 to 0,93, thus exhibiting a strong degree of internal consistency. The second question, focussing on the stability, repeatability, or degree to which a second test predicted the first, was also answered satisfactorily. Gregorc (1982b) reported the test-retest correlation coefficients all to be significant at the $p < 0,001$ level or less, the coefficients ranging from 0,85 to 0,88, thus indicating that the Gregorc Style Delineator scales exhibit strong reliability.

3.5.2.7 The Gregorc Style Delineator: Comments and critique

The stated purpose of the Gregorc Style Delineator is to "provide an individual with a *key* or matrix to better understand and appreciate the subtle and potent qualities of his mind, his personal behaviour, the behaviour of others, and the demands placed upon individuals by their environment(s)" (Gregorc, 1982a, p. 41). Gregorc also suggests that this knowledge can serve as a tool to understand the *Theory of Relativity* 'as it applies to human beings:

The theory of relativity emphasizes the notion that no matter what we observe, we always do so relative to a frame of reference that may differ from someone else's; that we must compare our frames of reference in order to get meaningful measurements and results about the events we observe. (Bentov, as cited in Gregorc, 1982a, p. 41)

This knowledge can further function on a personal level, aiding in the process of "knowing thyself". According to Gregorc (1982b), this "self" knowledge can validate and confirm an inner sense of direction, providing personal recognition and respect. The Delineator may encourage the "SELF" to speak; qualities and characteristics may be revealed which the individual has not recognized, or even denied himself. Apart from these constructive uses of the Delineator however, some caution is also necessary, seeing that the potential also exists for negative results or use of data. Gregorc emphasizes that there are many different 'formulae' within us; not just those identified by the Style Delineator (1985).

Some respondents may not accept the scores they receive, or the Delineator may simply not "work" for them. Gregorc outlines the following five necessary precautions that need to be kept in mind whenever using the Style Delineator:

1. Relative, not absolute, abilities and capacities are shown.

2. Latent abilities and capacities, which have not been developed or refined, may be revealed by a "pointy head" score.
3. It is inappropriate to use the Delineator as sole criterion for educational diagnosis, prescription, and career selection.
4. Matching an individual's dominant style with environmental demand will not necessarily result in a positive prediction of school and job success.
5. The scores on an individual's Delineator may be incorrect for the following reasons: the 'unknown' category - there is no identifiable reason for the discrepancy between the scores and the view of Self; directions are not followed, many words are not understood and the person does not admit this, and the 'surprise' category - the person might see himself in a particular way, but the scores reveal otherwise (1982a, pp. 41, 42; 1985).

Apart from the abovementioned cautions concerning the use of the Delineator, Gregorc also points out that the results obtained with the Delineator are to be used 'advisedly'. The findings need to be validated not only by means of stringent personal confirmation, but also through observation and construct and criterion referenced validity studies (Drummond & Stoddard, 1992; Visser, 1986).

Gregorc's Style Delineator is thus intuitively appealing and the four separate scales meet some requirements for factor definition. However, the instrument can only benefit from re-analysis and revision, more specifically, subjection to confirmatory factor analysis in order to examine the construct validity of the four underlying dimensions. Studies have partially supported Gregorc's model and the internal consistency of the scales (Drummond & Stoddard, 1992; Joniak & Isaksen, 1988; O'Brien, 1990; Seidel & England, 1999). The Gregorc Style Delineator and scoring sheet is presented in Appendix 3.

3.5.2.8 Choice of measurement instrument

Although no rules or specific prescriptions exist concerning the choice of measuring instruments, there are certain guidelines and requirements that should be taken into consideration. De Bello (1990) provides the following background against which to view the selection of an instrument:

(t)here is enough room in this newly emerging field for differences and even dissension among theorists. Their differences of opinion are what make us pay attention to what they have proposed. Their beliefs are honest and have integrity, but some are based essentially on theory and others on extensive research One is not necessarily better than the other - they may be mutually complementary - but some have exercised the obligation of providing strong experimentation behind the suggested practices. (p. 218)

De Bello (1990) suggests the following three important guidelines concerning the choice of an instrument: Firstly, is it reliable and valid; secondly, is there widespread practitioner use; and thirdly, is

there extensive research behind the model?

Visser (1986) cites further general requirements measuring instruments should comply with. One of the first considerations is that the instrument should be objective, reliable and valid. The data, gathered by means of the instrument, should be transferable into practice. A sound research base is essential. The nature and extent of the instrument is also an important consideration - it should be relatively simple; the respondent should be able to complete it in a reasonably short time; and the calculations and interpretation should be quick and easy. Moreover, it is always useful if the results can be presented on a continuum.

There are a number of practical considerations that should also be considered. The costs involved inevitably have important immediate implications. The availability and accessibility of the instrument also has immediate bearing on the decision of choice. If the measuring instrument is not available in the mother tongue of the respondent, the applicability thereof should be seriously considered. The age of the testees for whom the instrument was developed and tested upon is also of great importance. A study of research publications will provide valuable insight (Visser, 1986).

All measuring instruments which have been developed are usually based on specific theorizing. It is thus the theory that determines the nature and extent of the instrument. Lawrence (as cited in Visser, 1986), offers the following useful perspective on the applicability of a theory, and therefore also on the measuring instrument based on this theory: "The proof of a construct is in its usefulness. All conceptions ... must pass the ultimate test of *practicality* ..." [italics added](p. 229).

It is impossible for a single measuring instrument to comply with all the requirements that have been mentioned. When a choice has to be made from several different instruments however, these can serve as guidelines. It is important that the researcher sets her- or himself clear objectives, taking all relevant information into account. Within this framework different instruments can be evaluated and a choice made (Visser, 1986).

The Gregorc Style Delineator was selected primarily because Gregorc's Mind Styles Model is the theoretical basis of this thesis. The following factors can be added to this salient factor (Park & Visser, 1988; Visser, 1986):

1. The Delineator was developed by one of the recognized leaders in the area of styles research; enjoys wide acclaim; and has undergone significant re-testing and refining.
2. The Delineator can be used at tertiary level.
3. The completion of the Delineator requires only five to ten minutes, and calculations are simple.
4. The Delineator identifies and subdivides respondents into one of four mind styles.
5. Further perspective is offered through the means of a graphic indication of respondents' dominant, intermediate, weaker, or dual mind styles, thus providing a dimensional richness.

3.6 Procedure

The collection of data took place during the course of the first five months of 2000. Class lists of the students in the four masters programmes at the University of Stellenbosch were obtained with the help of the Chairperson of the Department of Psychology, and the various departmental secretaries. In order to reach the subjects and ensure objectivity and consistency, permission to approach the students in the four masters programmes was sought from the respective departmental chairpersons and course coordinators: Clinical and Counselling Psychology (Department of Psychology); Educational Psychology (Department of Educational Psychology and Specialized Education); and Industrial Psychology (Department of Industrial Psychology). The Chairperson of the Department of Psychology (and supervisor of this thesis) approached the respective course coordinators in the department, and the chairpersons of the other two departments on behalf of the researcher.

A research package was prepared for each subject, consisting of an envelope containing the Biographical and Information Questionnaire and the Gregorc Style Delineator. In the case of the Style Delineator an Afrikaans glossary was attached should it be required. Permission for the use of the glossary was obtained by the researcher from Dr. E. M. Visser of the Department of Consumer Science: Food, Clothing, Housing, at the University of Stellenbosch, who first translated the glossary as part of her doctoral dissertation. An explanatory covering letter and detailed instructions were also included. The appropriate numbers of research packages were delivered to the respective departmental secretaries, who in turn delivered them to the various course coordinators.

At the convenience of the course coordinators, the research packages were distributed during regularly scheduled meetings of the intact classes. Subjects were instructed to return the envelopes with their completed contents to the various departmental secretaries, from where the researcher collected all such protocols. Follow-up letters and an offer of personal feedback on the results were used to boost the return (see Appendix 4).

Research packages were mailed to those subjects whose internships were being conducted further afield, or were not residing in Stellenbosch. Again, each subject received a covering letter requesting their participation and a speedy response. A similar offer of personal feedback on results was made. A postage-paid return envelope was included.

All subjects were assured of full confidentiality.

Of the 108 research packages that were handed out or posted, 68 usable protocols were returned, representing a response rate of 62,96%.

The researcher processed all questionnaires, and hand-scored all the Gregorc inventories. For the purpose of external validation, all inventories were independently verified for accuracy.

3.7 Statistical techniques used

Statistical analyses were conducted using the SPSS for Windows, Version 10.0.

In order to address the objectives of this study, descriptive statistics were used within the differential research design (Graziana & Raulin, 2000). Descriptive statistics were used to present all data related to the identification and comparison of mind styles within and between the four groups of subjects. A Univariate Analysis of Variance (ANOVA) tested for differences in the means of the four groups.

The Kruskal-Wallis Test, a non-parametric test analogous to a standard one-way analysis of variance, was employed to test for differences between the four groups concerning the mind style categories, and the mean ranks scored on the Gregorc Style Delineator words. The Pearson product-moment correlation coefficient was used to quantify the relationship between the Gregorc Style Delineator words and the four specialization groups (Howell, 1999).

3.8 Summary

In this chapter the research design, research problems and research questions were presented, as well as a description of the sample and the various sample divisions. The instruments used for the collection of data were described: the Biographical and Information Questionnaire and the Gregorc Style Delineator. The research procedure was explained and the statistical techniques employed were noted.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter provides a summary of the response rates and all biographical information, as well as an exposition which addresses the research questions pertaining to the four specialization fields of study: clinical, counselling, educational, and industrial psychology.

The results will be discussed under the following main subheadings:

- 4.2 Response characteristics
- 4.3 Biographic information
- 4.4 Mind styles
- 4.5 Relationship between Gregorc Style Delineator words and the four specialization groups
- 4.6 Correlation between Gregorc Style Delineator words and mind styles
- 4.7 Choice of specialization field of study

4.2 Response characteristics

The response rate, rate of useable responses and rate of spoilt responses will be discussed. These rates appear in Table 1.

Table 1

Response Rate and Spoilt Rate of Questionnaires

Questionnaires	N	Response rate	
		n	%
Handed out or posted to all	108	71	65,74
Spoilt responses		3	2,78
TOTAL	108	68	62,96

Of the 108 research packages handed out and sent out, 71 were returned. This was a response rate of 65,74% which represents a very high response rate. A small number of responses were spoilt due to inadequate or conflicting responses and a useable response rate of 62,96% was thus

obtained. This high response rate allows for the assumption that, within certain boundaries of error, the feedback may be considered to be representative of the four groups of psychology masters students, which made up the sample regarding this research problem.

4.3 Biographic information

Data as elicited from the Biographical and Information Questionnaire appear in Tables 2 to 9. Table 2 presents the four specialization categories as characterized by their year of study.

Table 2

Specialization Categories and Year of Study (N = 68)

Specialization Categories	Year of Study	
	MI (%)	MII (%)
Clinical psychology	8 (57,14)	6 (42,86)
Counselling psychology	8 (36,36)	14 (63,86)
Educational psychology	5 (26,32)	14 (73,68)
Industrial psychology	9 (69,23)	4 (30,77)

According to Table 2, 14 (20,59%) of the 68 subjects were specializing in Clinical psychology, 22 (32,35%) in Counselling psychology, 19 (27,94%) in Educational psychology, and 13 (19,12%) in Industrial psychology.

The gender of the sample is portrayed in Table 3.

Table 3

Gender

Gender	n (%)
Male	20 (29,41)
Female	48 (70,59)

The greater majority of the sample (70,59%) was comprised of women, compared to 29, 41% men.

Table 4 presents an analysis of the age groupings represented by the sample.

Table 4

Age Distribution

Age Groups	n (%)
20 – 29	36 (52,94)
30 – 39	32 (33,82)
40 – 49	9 (13,24)

The age distribution indicated that more than half of the sample (52,94%) were contained in the 20-29 age category, while the balance (46,06%) were contained in the age categories of 30-39 and 40-49, making this a rather 'young' sample.

The indicated marital status of the sample is presented in Table 5.

Table 5

Marital Status

Marital Status	n (%)
Single	33 (48,53)
Married	32 (47,06)
Divorced	2 (2,94)
Widowed	1 (1,47)

The sample was more or less evenly divided concerning marital status: 52,94% single (including the divorced and widowed), compared to 47,06% married.

The subjects' given nationalities are summarized in Table 6.

Table 6

Nationality

Nationality	n (%)
South African	67 (98,53)
Other	1 (1,47)

Only one subject was not of South African nationality, the nationality in question being Zimbabwean.

Table 7 will show the subjects' cited home languages.

Table 7

Home Language

Home Language	n (%)
Afrikaans	36 (52,94)
English	21 (30,88)
Bilingual	5 (7,35)
Other	6 (8,82)

As is apparent in Table 7, the majority of subjects cited Afrikaans as their home language (52,94%), while 30,88% were English. Five subjects (7,35%) indicated Afrikaans/English bilingualism. The remaining six subjects (8,82%) reported the following home languages: German (3), isiXhosa, (2), and isiZulu (1).

Table 8 portrays the range of qualifications as listed by the subjects.

Table 8

Qualifications

Qualifications	n (%)
Certificates, diplomas, graduate, and post-graduate	30 (44,12)
Graduate and post-graduate	28 (41,18)
Certificates, diplomas, and graduate	6 (8,82)
Graduate	4 (5,88)

The sample as a whole was characterized by a high degree of qualification: 85,30% had already completed post-graduate study, while 14,70% had completed graduate work. This is illustrative of the developmental study sequence in psychology, with an accepted baccalaureate and honours degree being part of the entrance requirements for application into any masters programme.

Previous work experience and training as documented by the sample is presented in Table 9.

Table 9

Work Experience and Training

Work Experience and Training	n (%)
Formal employ: 1 – 5 years	19 (27,94)
Formal employ: 6+ years	25 (36,77)
Casual, voluntary, and short-term employ	21 (30,88)
None	3 (4,41)

The sample was characterized by extensive and diverse previous work experience and training, with 95,59% reporting such. Some of the subjects' reported experience and training included: teaching and tutoring; counselling (AIDS, bereavement, crisis, marriage, family, study skills); sales; auditing; management; stock-broking; journalism; and human resource recruitment, training and development.

4.4 Mind styles

In this section, all data pertinent to the discussion of the mind styles of the four specialization groups will be presented.

4.4.1 Dominant mind styles

Table 10 provides a profile of the dominant mind styles of the four groups in the sample, indicated according to specialization course and year of study.

Table 10

Frequency Distribution of Dominant Mind Styles according to Specialization Course and Year of Study

Course and year of study		Mind Styles			
		CS f	AS f	AR f	CR f
Clinical:	MI	4	3	6	5
	MII	-	-	2	2
Counselling:	MI	7	2	11	6
	MII	2	-	3	4
Educational:	MI	4	2	8	5
	MII	3	3	2	2
Industrial:	MI	6	3	7	3
	MII	1	1	1	-
TOTAL		27	14	40	27

The clear dominant mind style among the four specialization groups was the Abstract Random style ($n = 40$). This was jointly followed, and at a significantly lower frequency, by the Concrete Sequential and Concrete Random styles ($n = 27$).

According to Gregorc (1982a) the majority of people exhibit more than one mind style. The totals in Table 10, however, represent all those subjects who scored dominantly - 27 and above - on *any* of the four mind styles.

Table 11 summarizes the mean scores for the mind styles of the four specialization groups.

Table 11

Mean Scores of the Mind Styles of the Four Specialization Groups

Specialization Groups	Mind Styles			
	CS \bar{X}	AS \bar{X}	AR \bar{X}	CR \bar{X}
Clinical	24,07	23,14	27,50	25,29
Counselling	24,73	22,05	28,59	24,64
Educational	23,68	23,16	28,21	24,95
Industrial	27,38	23,31	26,77	22,54

The Abstract Random (AR) mind style is clearly the dominant style for the clinical, counselling, and educational specialization groups. When using this format of investigation, the industrial specialization group evidenced a marginal decimal difference in favour of a dominant Concrete Sequential (CS) mind style (\bar{X} = 26,38), rather than an Abstract Random (AR) style (\bar{X} = 26,77).

Figure 3 presents a graphic illustration of the distribution of the mean scores for the four specialization groups.

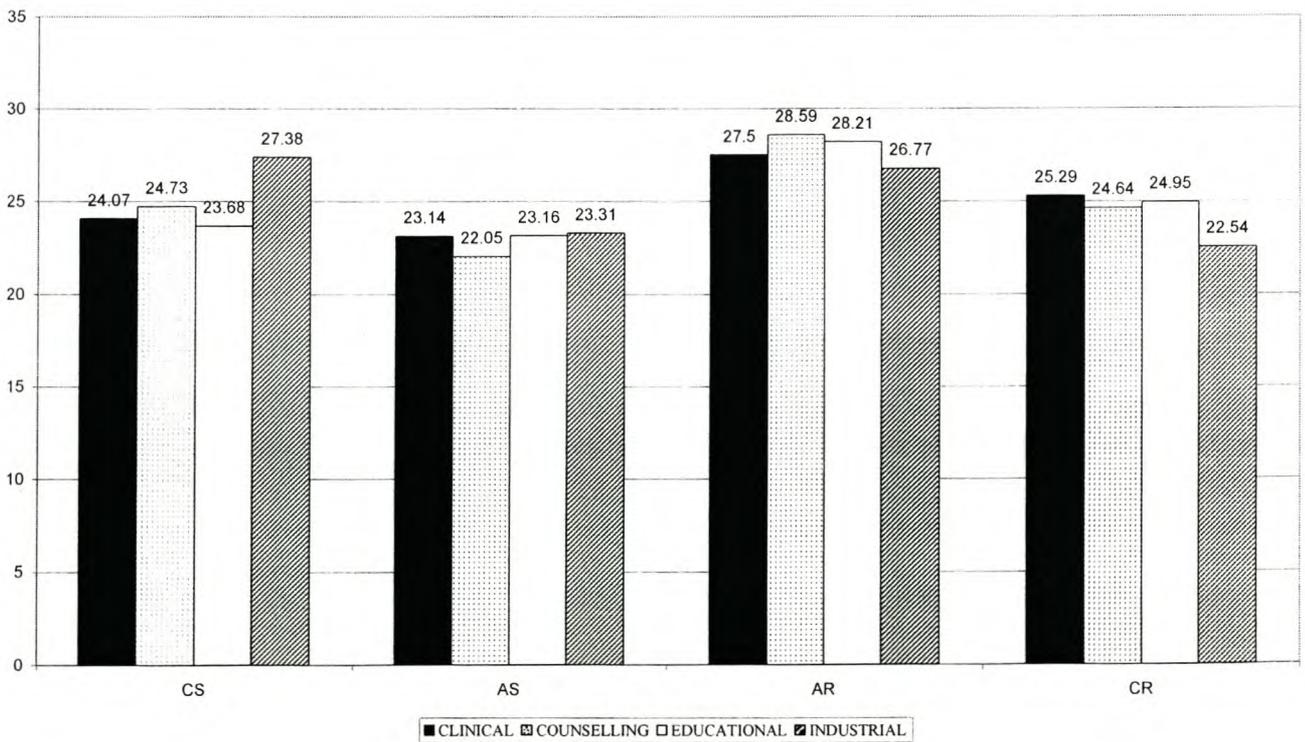


Figure 3 Mean Scores of the Mind Styles of the Four Specialization Groups.

The visual format of Table 11, as contained in Figure 3, strikingly portrays the relative insignificance in the mean differences between the four specialization groups' mind styles.

Table 12 presents the Kruskal-Wallis Test for differences between the mind style categories.

Table 12

Kruskal-Wallis Results for the Mind Style Categories

Mind Styles	χ^2	df	p
Concrete Sequential	3,473	3	0,324
Abstract Sequential	0,801	3	0,849
Abstract Random	0,929	3	0,818
Concrete Random	2,516	3	0,472

All p-values were bigger than 0,05. No significant differences were thus observed.

4.4.2 Bimodal mind styles

Table 13 will present an analysis of the distribution between the four specialization groups of pure style (dominant score of between 27 and 40 on one scale), and bimodal style (dominant scores on two scales).

Table 13

Frequency Distribution of Dominant Mind Styles with Regard to Pure Style and Bimodal Style
(N = 68)

Course and Year of Study	CS	Pure Style			Mind Styles			Bimodal Style			
		AS	AR	CR	CS/AS	CS/AR	CS/CR	AS/AR	AS/CR	AR/CR	
Clinical:											
MI	2	-	3	1	2	-	-	-	-	1	3
MII	-	-	-	-	-	-	-	-	-	-	2
Counselling:											
MI	2	-	3	1	1	4	-	-	1	4	
MII	1	-	-	2	-	1	-	-	-	2	
Educational:											
MI	1	1	3	-	1	1	1	-	-	4	
MII	1	1	1	1	1	1	-	-	1	-	
Industrial:											
MI	1	-	2	-	2	2	1	1	-	2	
MII	-	1	-	-	-	1	-	-	-	-	
TOTAL	8	3	12	5	7	10	2	1	3	17	

Table 13 supports Gregorc's assertion that the majority of people exhibit a bimodal style profile rather than single 'pure' style dominance. It is thus apparent that of the 40 Abstract Randoms (Table 10), only 12 are indicated as having a pure mind style, while ten are CS/AR, one is AS/AR, and 17 are AR/CR. The AR mind style is therefore clearly the dominant pure mind style among the four specialization groups, while the Abstract Random bimodal style combinations are also by far the most distinctive, representing 28 of the 40 bimodal style subjects.

Of the 27 Concrete Sequential styles, eight were pure CS, while five of the 27 Concrete Random styles were pure styles. Only three of the Abstract Sequential styles were pure.

4.5 Mean ranks of the Gregorc Style Delineator words and the four specialization groups:

In order to test for differences between the four groups' mean scores on the words of the Gregorc Style Delineator, the Kruskal-Wallis test was used. The results are presented in Table 14.

Table 14

Kruskal-Wallis Test of Mean Rank Scores

Words	Clinical \bar{X}	Specialization Counselling \bar{X}	Groups Educational \bar{X}	Industrial \bar{X}	χ^2
Objective	32,86	34,09	35,26	35,85	0,208
Evaluative	36,43	33,57	31,87	37,85	0,979
Sensitive	29,29	33,59	39,95	33,69	2,728
Intuitive	40,07	36,32	30,87	30,73	2,576
Perfectionist	37,82	33,59	30,66	38,08	1,772
Research	36,75	29,98	33,63	41,00	2,989
Colourful	29,79	40,50	31,82	33,35	3,482
Risk-taker	32,07	34,39	44,21	23,12	9,916*
Solid	36,18	32,25	34,53	36,46	0,562
Quality	36,64	36,00	34,71	29,35	1,291
Non-judgmental	32,46	33,18	38,95	32,42	1,463
Insightful	33,93	37,91	27,84	39,08	4,031
Practical	36,57	24,45	40,26	40,85	9,433*
Rational	34,71	37,23	32,84	32,08	0,809
Lively	31,43	36,32	37,34	30,58	1,567
Perceptive	35,29	40,82	27,47	33,23	5,174
Careful with detail	29,00	35,52	29,55	45,92	7,784
Ideas	30,79	32,91	39,00	34,62	1,776
Aware	34,54	36,52	35,16	30,08	0,976
Creative	43,18	32,45	36,18	26,15	5,746
Thorough	32,18	40,48	26,50	38,58	6,305
Logical	41,68	34,09	30,21	33,73	3,046
Spontaneous	29,96	34,70	39,79	31,31	2,659
Trouble-shooter	35,61	29,73	40,45	32,69	4,160
Realistic	31,14	36,00	34,05	36,23	0,692
Referential	31,39	32,52	32,39	44,27	5,056
Empathy	33,43	36,32	35,32	31,38	0,706
Innovative	37,18	33,07	36,11	31,69	0,866
Ordered	28,07	34,73	32,82	43,50	4,616
Proof	28,89	31,34	42,18	34,65	5,427
Attuned	41,36	34,55	28,00	36,54	4,232
Multi-solutions	39,21	36,59	35,05	25,08	4,320
Persistent	34,36	38,36	29,47	35,46	2,261
Analytical	42,93	28,05	35,03	35,58	5,342
Aesthetic	35,11	34,11	36,13	32,12	0,371
Experimenting	19,61	37,91	39,42	37,58	11,486**
Product-oriented	30,86	35,09	34,29	27,73	0,945
Judge	31,36	34,45	36,63	34,85	0,676
Person-oriented	37,57	36,43	31,32	32,58	2,111
Practical dreamer	40,21	30,86	36,08	32,19	2,525

*p<0,05

**p<0,01

The results in Table 14 indicate that out of the 40 Style Delineator words, levels of significance were achieved only in the case of three words. With a \bar{X} of 44,21 the Educational group scored significantly higher than the other groups on the word 'risk-taker' ($\chi^2(3, N=68) = 9,916, p < 0,05$). Both the Educational ($\bar{X} = 40,26$) and the Industrial ($\bar{X} = 40,85$) groups scored significantly higher on the word 'practical' ($\chi^2(3, N=68) = 9,433, p < 0,05$). In the case of the word 'experimenting' ($\chi^2(3, N=68) = 11,486, p < 0,01$), the Clinical group ($\bar{X} = 19,61$) had a significantly lower score than the other three groups.

4.6 Correlation between Gregorc Style Delineator words and mind style

The Pearson product-moment correlations between the four specialization groups' mind styles and Gregorc Style Delineator words are reported in Table 15.

Table 15

Pearson Correlations between Gregorc Style Delineator Words and Mind Styles

Words	Mind Styles			
	CS	AS	AR	CR
Objective	0,438**	0,180	-0,341**	-0,328**
Evaluative	0,162	0,620**	-0,468**	-0,253*
Sensitive	-0,040	-0,455**	0,427**	0,006
Intuitive	-0,524**	-0,299*	0,340**	0,534**
Perfectionist	0,529**	-0,020	-0,247**	-0,356**
Research	0,095	0,404**	-0,310*	-0,147
Colourful	-0,287*	-0,439**	0,642**	0,067
Risk-taker	-0,433**	0,053	-0,022	0,488**
Solid	0,429**	0,260*	-0,331**	-0,397**
Quality	0,150	0,129	-0,256*	-0,029
Non-judgmental	-0,355**	-0,164	0,451	0,104
Insightful	-0,300**	-0,286*	0,157	0,442**
Practical	0,454**	0,178	-0,333**	-0,352**
Rational	0,256*	0,443**	-0,362**	-0,318**
Lively	-0,469**	-0,337**	0,456**	0,383**
Perceptive	-0,290*	-0,286*	0,268*	0,318**
Careful with detail	0,681**	0,104	-0,237	-0,654**
Ideas	-0,461**	0,041	0,117	0,390**
Aware	-0,639	0,185	0,141	-0,257*
Creative	-0,337**	-0,320**	0,039	0,636**
Thorough	0,536**	-0,161	-0,171	-0,322**
Logical	0,184	0,548**	-0,297*	-0,390**
Spontaneous	-0,381**	-0,473**	0,674**	0,175
Trouble shooter	-0,327**	0,137	-0,211	0,482**
Realistic	0,584**	0,072	-0,350**	-0,396**
Referential	-0,068	0,594**	-0,245*	-0,184
Empathy	-0,182	-0,493**	0,616**	0,016
Innovative	-0,417**	-0,206	0,047	0,624**
Ordered	0,661**	0,082	-0,290*	-0,557**
Proof	0,075	0,599**	-0,423**	-0,177
Attuned	-0,409**	-0,391**	0,614**	0,198
Multi-solutions	-0,372**	-0,262**	0,106	0,560**
Persistent	0,549**	-0,170	-0,183	-0,316**
Analytical	0,060	0,498**	-0,236	-0,262*
Aesthetic	-0,417**	-0,272*	0,456**	0,266*
Experimenting	-0,338**	-0,120	0,029	0,474
Product-oriented	0,320**	0,097	-0,162	-0,137
Judge	0,041	0,407**	-0,384**	-0,062
Person- oriented	-0,062	-0,497**	0,454**	-0,080
Practical dreamer	-0,283*	-0,013	0,092	0,270*

*p<0,05

**p<0,01

As the Abstract Random mind style was the dominant mind style for all four specialization groups, only the significant word correlations on the $p < 0,01$ level regarding this mind style will thus be extracted.

The positively correlating words, listed from highest to lowest, were as follows: Spontaneous (0,674); Colourful (0,642); Empathy (0,616); Attuned (0,614); Lively (0,456); Aesthetic (0,456); Person-oriented (0,454); Sensitive (0,427); and Intuitive (0, 340).

The negatively correlating words, again listed from high to low, were as follows: Evaluative (-0,468); Proof (-0,423); Judge (-0,384); Rational (-0,362); Realistic (-0,350); Objective (-0,341); Practical (-0,333); Solid (-0,331); and Perfectionist (-0,247).

4.7 Choice of specialization field of study

4.7.1 Primary reasons of choice

A summary of the primary reasons for the four groups choice of their particular specialization field of study will be presented in Table 16.

Table 16

Average Percentages of the Primary Reasons of the Four Groups for Choice of Particular Specialization Field (N = 68)

	Clinical n = 14	Counselling n = 22	Educational n = 19	Industrial n = 13
Primary reasons	% (f)	% (f)	% (f)	% (f)
Field of interest	100,00(14)	40,91 (9)	42,11 (8)	84,62(11)
Helping others	78,57(11)	59,09(13)	73,68(14)	38,46 (5)
Personal growth and development	78,57(11)	36,36 (8)	36,84 (7)	30,77 (4)
Interest in people	57,14 (8)	36,36 (8)	10,53 (2)	46,15 (6)
Future prospects and rewards	21,43 (3)	13,64 (3)	47,37 (9)	7,69 (1)
Belief in human potential	14,23 (2)	45,46(10)	10,53 (2)	7,69 (1)
Professionalism	14,23 (2)	4,55 (1)	31,58 (6)	23,08 (3)
Personal fit	50,00 (7)	13,64 (3)	5,26 (1)	-
Calling	14,23 (2)	9,09 (2)	10,53 (2)	7,69 (1)

For each of the specialization groups the foremost three reasons will be extracted:

The results show that the primary reason (100%) for choice of specialization of the clinical psychology group was 'field of interest' (love for and fascination with the field, challenge and

stimulation offered, specific nature of work), followed equally (78,57% each), by 'helping others' (psychology as service-oriented, healing profession), and 'personal growth and development' (self-discovery and understanding, improved training and skills).

The counselling psychology group cited 'helping others' as their primary reason (59,09%), followed by 'belief in human potential' (resilience, ability to transcend circumstance), and 'field of interest' at 45,46% and 40,91% respectively.

'Helping others' was again the primary reason for the educational psychology group (73,68%), with 'future prospects and rewards' (work opportunities, financial empowerment), and 'field of interest' following at 47,37% and 42,11%.

Finally, the industrial psychology group overwhelmingly indicated 'field of interest' as primary reason (84,62%), with 'interest in people' (their complexity, nature, behaviour, dynamics) and 'helping others' following quite far behind (46,15% and 38,46%).

4.7.2 Reasons for not pursuing preferred course of study

Of the total sample (N = 68), 60 subjects (88,24%) were pursuing their first choice of specialization field of study, while eight (11,76%) were not. A summary of these eight subjects' course of study and preferred course of specialization study will be presented in Table 17.

Table 17

Course of Study and Preferred Course of Study (n = 8)

Course of study	Preferred course of study			
	Clinical	Counselling	Educational	Industrial
Clinical	-	-	-	-
Counselling	-	-	-	-
Educational	4	2	-	1
Industrial	1	-	-	-

Of the eight subjects, seven were registered in the Educational psychology masters programme. Of these, four would have preferred to study Clinical psychology, two Counselling psychology, and one Industrial psychology. One subject, registered for Industrial psychology, would have preferred to study Clinical psychology.

A summary of these eight subjects' reasons for not pursuing their preferred specialization course of study, will be presented in Table 18.

Table 18

Reasons for not Pursuing Preferred Specialization Course of Study (n = 8)

Reasons	Average percentages	
	%	(f)
Not selected	50,00	(4)
Finances	25,00	(2)
Committed to current course	12,50	(1)
Time	12,50	(1)

The primary reason (50%) for the subjects not pursuing their preferred course of study was unsuccessful application. Financial reasons, for example the fact that part-time study was not an option, were cited by two subjects (25%). One subject (12,50%) reported a time-related reason - the reality of too lengthy a process to change over at masters level.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter contains a discussion of the most significant findings of this study, as well as the delimitations. This is followed by some concluding remarks and recommendations.

5.2 Discussion of findings

5.2.1 Dominant mind styles

Based on evidence cited in literature, it seems that there is overwhelming consensus, theoretically, academically, and professionally, in support of clear delineation and differentiation between the specialization groups and registration categories in psychology. In the light of this, the results of this study, although of a limited nature, must therefore be seen as significant. The research objective addressing the possible alignment of a particular mind style with a particular specialization group found *no indication* of a separate, distinctive or characteristic mind style for any of the four study groups in question. The frequency counts for each of the four specialization groups (clinical, counselling, educational and industrial psychology) confirmed a dominant Abstract Random mind style (see Table 10).

A dominant mind style is indicated if a dominant point for one of the channels is obtained on the Style Delineator - a numerical score of between 27 and 40. This signifies that the particular channel is the subjects' most powerful mediation quality and means of transaction, including a profile of displayed characteristics. This orientation is also termed 'pointy-head' dominance because this extended point " ... conveys specialized penetration abilities and the capacity for the greatest momentum and concentration in that channel" (Gregorc, D., 1997, p. 8). The Abstract Random mind style and its accompanying profile can therefore be seen as being representative of the total sample, the shared characteristics for the four specialization groups making them more similar than different.

As a further refinement and point of interest the issue of bimodal mind styles was addressed. Gregorc (1982a; 1985) noted very clearly that no pure styles exist. It is virtually impossible for any individual to reflect all of the distinguishable style characteristics inherent in any single point (Gregorc, D., 1997). Individuals are naturally gifted with all four qualities of concreteness, abstractness, sequentialness, and randomness, with the ability to use all four

mediation channels (CS, AS, AR, CR). There is thus a strong and natural disposition or orientation toward two (or even more) of these styles - bimodality of style. The accuracy of the above statement was verified when a 'finer' analysis concerning the dominant mind styles of the four specialization groups were made (see Table 13). The pure mind styles accounted for 28 subjects (41,18%) of the total sample (N = 68), while 40 subjects (58,82%) demonstrated a bimodal style.

In this refined analysis, the Abstract Random mind style was again clearly the dominant pure style, representing 42,86% of the pure mind style sample. Further, amongst the six bimodal style combinations identified by this analysis, CS/AS, CS/AR, AS/AR, AS/CR, and AR/CR, the AR/CR mind style was the most distinctive bimodal style, accounting for 42,50% of the bimodal style sample. The rest of the AR bimodal style combinations (CS/AR and AS/AR) accounted for a further 27,50% of the bimodal style sample. Undoubtedly, the quality of randomness seems to be descriptively characteristic of the total sample.

It is interesting to note that, in mean score format, the Industrial psychology specialization group evidenced a dominant Concrete Sequential mind style, although this did not significantly differ from the other three groups (see Table 11). The difference occurred only on a minimal decimal level. When rounded off, the mean scores for the Industrial psychology group were similar for both the Abstract Random and Concrete Sequential mind styles (26,77 and 27,38): this implies a true bimodal CS/AR style.

An important affirming aspect though, is also apparent when considering the lack of unambiguously defined mind styles for the four specialization groups, especially when consulting Figure 3 (Section 4.4.1). Gregorc (1982a) comments that well-balanced scores indicate equally distributed abilities, and therefore the capacity for "great momentum and concentration in all four channels" (p. 14). Psychologists may therefore be cases in point, showing evidence of optimally balanced or well-rounded mind style profiles. They would therefore have the potential and the ability to adapt and adjust to whatever circumstances require of them.

5.2.2 Relationship between the Gregorc Style Delineator words and the four specialization groups

The objective of the third research question was to ascertain whether any relationship existed between the Gregorc Style Delineator words and the four specialization groups. The premise was that all words identified as significant could then be used to build on to the description and

definition of each clearly delineated group mind style profile. The results indicated the absence of any significant relationship between the words and the specialization groups.

Only *three* out of the 40 words achieved ratings of significance. According to Table 14, ‘Risk-taker’ was the most descriptive of the Educational psychology group, and least descriptive of the Industrial psychology group. ‘Practical’ was the most descriptive of the Industrial and Educational psychology groups, while least descriptive of the Counselling psychology group. ‘Experimenting’ was descriptive of the Educational, Counselling and Industrial psychology groups, but least descriptive of the Clinical psychology group. In the light of these identified significances it is tempting to draw correlational inferences concerning the specific nature and characteristics of the particular specialization groups as far as their job descriptions and places of work are concerned. Do Educational psychologists have to be more ‘risky’ due to the variable nature of their clientele, while for the Industrial psychologist working in the world of business the word ‘risk’ holds a definite negative meaning? Are Educational and Industrial psychologists required to be more realistically adaptable, while Counselling psychologists are more ‘theoretically grounded’? Are Counselling, Educational, and Industrial psychologists, because of the diversity of their clients, required to be more flexible compared to Clinical psychologists who work very much from a model and systems-oriented classification system?

The results of this section thus concur with the findings discussed in section 5.2.1, namely, that the lack of evidence concerning salient descriptives may strongly suggest the four specialization groups being more similar than different.

5.2.3 Correlations between Gregorc Style Delineator words and mind styles

The fourth research question of this study was posed in order to further shed light on the evident differentiation between the specialization groups in psychology. The objective of this question was to determine whether any of the 40 Style Delineator words correlated significantly with any of the identified mind styles of the four specialization groups. The premise was that the significantly correlating words would represent an addition to the separate profiles of characteristics for each specialization group, thereby consolidating the actuality of differentiation. As far as the researcher could ascertain, an investigation of this nature has not been documented before.

It was not possible to fulfil this objective, due to the fact that no distinguishing, distinctive mind style was found to align with any of the four specialization groups, therefore

concurring with the first three research question results. The Abstract Random mind style was identified as aligning with each of the four study groups: clinical, counselling, educational, and industrial psychology. All the words that significantly correlated with the Abstract Random mind style on the $p < 0,01$ level, positively and negatively, can therefore be taken to be representative of the whole sample (please refer to Table 15).

The nine positively correlating words, identified by means of the Pearson Product-Moment method, certainly describe 'a psychologist'. The words represent an exemplar of the 'psychologist' script, suggesting a unified sameness: spontaneous; colourful; empathy; attuned; lively; aesthetic; person-oriented; sensitive; and intuitive - certainly a description appropriate of a representative of the helping profession.

It would be interesting to infer, though, the full significance of the nine negatively correlating words associated with the Abstract Random style (also on the $p < 0,01$ level): evaluative, proof, judge, rational, realistic, objective, practical, solid, and perfectionist, since these words are highly descriptive of the empirical component of psychology as science.

The researcher acknowledges that the application of a cluster analysis would have yielded invaluable additional data, namely, an indication of whether certain words significantly cluster with certain mind styles. However, the sample size, $N = 68$, did not allow for this method of analysis.

5.2.3 Choice of specialization field of study

According to the assertion of strong differentiation existing between the specialization groups in psychology, it was expected that each of the four study groups would offer a uniquely definitive set of reasons as to why they chose their particular specialization field. In consulting Table 16 however, it is evident that the two primary reasons of choice of all four groups display remarkable similarity, the reasons being 'field of interest' and 'helping others'.

Although the rest of the reasons of choice show evidence of individual 'group-specific' ranking among the four groups, the reasons can yet be seen as epitomizing the 'global' motives of these four groups of masters students for entering the profession of psychology, and as such therefore constitute generalized 'master' reasons for pursuing their preferred vocation. It might also be appropriate here to again note Gregorc's belief that individuals are attracted to certain occupations because of a particular mind style. Does psychology dominantly attract individuals with an Abstract Random mind style?

The results of this study show that only eight of the 68 subjects were not studying their first choice psychology masters programme. One subject, studying Industrial psychology, would have preferred Clinical psychology. However, seven of the 19 Educational psychology subjects were not studying their first choice. Four would have preferred to study Clinical psychology, two would have preferred Counselling psychology, and one indicated a preference for Industrial psychology. A fair number of the Educational psychology subjects (36,84%) were therefore not studying their preferred specialization course of study.

Although the results of this study may not appear to be representative of all psychology masters students in South Africa, it should be noted that all the subjects were selected from a pool of applications from the entire country, thus representing geographic distribution. It is therefore tentatively suggested that the results of this study may reflect, at least to an extent, similar profiles of psychology masters students at other institutions (see also Section 5.3).

5.3 Delimitations of this study

The results of this study should be considered as being heuristic because of the limited size of the sample, and in this sense can only be seen as exploratory. Subjects were drawn from only one institution, the University of Stellenbosch, and results may therefore not necessarily be conclusive or applicable on students at other institutions in the country.

The cross-validation of findings and replication in other institutions may yield alternative results. The inherent limitations in the qualitative techniques and instruments used in the study must also be borne in mind when analysing the results.

5.4 Conclusion and recommendations

This study set out to investigate the possibility of the existence of an alignment between four mind styles, Concrete Sequential, Abstract Sequential, Abstract Random, Concrete Random, and the Clinical, Counselling, Educational, and Industrial psychology specialization areas of study and categories of registration in South African psychology. Psychology masters students at the University of Stellenbosch constituted the sample. No differentiation of mind style was found. On the contrary, all four groups evidenced a similar dominant mind style - Abstract Random.

An important secondary research objective sought to ascertain whether any relationship existed between the Style Delineator words and the four specialization groups. As with the main research question, no obvious association was found, since only three out of the 40 words were

highlighted as being minimally significant. Without further cluster analysis, only subjective inferences could be drawn pertaining the evidence of the significance of the three words.

A further secondary research question investigated the possible correlation of the words contained in the primary measuring instrument used in this study, the Gregorc Style Delineator, with each of the mind styles. Since all four study groups had been identified as possessing a dominant Abstract Random mind style, only the significant word correlations (on the $p < 0,01$ level) with this particular mind style were discussed. It was suggested that the words that positively correlated with the Abstract Random style could be construed to contribute to the defining or distinguishing characteristics of the mind style in question, and thus of psychologists.

In looking at the primary reasons for choosing and studying their particular specialization courses, the four groups yet again demonstrated more similarity than difference. Although there were reasons unique to each group, the majority in each group concurred concerning the two top reasons, field of interest and helping others.

The Mind Style theory of Anthony Gregorc formed the theoretical base and framework for this thesis: each individual has a natural, inborn inclination towards one or two (bimodal) mind styles (CS, AS, AR, CR). These internal styles are externalised in the form of certain sets of characteristics and actions: "Some styles are recognizable because they appear consistently for individuals over periods of time ... Styles can be observed across content domains, abilities, personalities, and interpersonal behaviours, and they are measured in terms of typical performance" (Curry, 1999, p. 409).

Theorists of occupational and career choice unanimously agree on the importance of an individual fitting or matching with just the 'right' occupation. Gregorc (1985) maintains that occupations send out signals, which are registered by a particular, corresponding mind style. The concept of 'mind style', which forms part of, and is a specific aspect of individuals' personalities, makes the following conclusion of Holland (1973) especially relevant: "The choice of a vocation is an expression of personality" (p. 6).

The psychology masters students that made up the sample of this study were all psychologists-in-training, preparing for their profession - the helping profession - as it is universally known. This helping profession though, has for many years been racked with the problem of identity, caused by the existence of separate specialization groups and registration categories, each with firm boundaries (Kimble, 1984; Koch, 1981; Rice, 1997; Richards, 1997; Staats, 1981). This differentiation seriously challenges the maintenance and sustenance of unity

and of presenting a united front.

The fracturing of the discipline results in uncomfortable relationships between the specialization groups, which are characterized by tension, " ... internal conflicts, competition between factions and dissension about values and norms" (de Wolff, 1984, p. 58). This is true internationally, and certainly in South Africa as well, thus grounding this discussion locally.

The damage done by the maintenance of many different identities in psychology must be counteracted if the mission of the profession is to be fulfilled - helping and being of service. For so long the members of the different specialization groups have been convinced of their distinctive, unique, 'categorical' differences; both in their characteristics and in the 'specialized' nature of their work.

The alternative, that in reality all psychologists, no matter what their registration, are more similar than different, has subsisted for long. However, the power of diversity and fragmentation has resulted in the perpetuation of the splintered identity. One of the subjects of this study noted: "I did not understand the difference between the options" (referring to clinical, counselling, educational, and industrial psychology). "What is the difference in the work they do? I think that the current categories are a joke". The findings of this thesis clearly support the alternative of similitude, in at least one aspect of personality: psychologists-in-training, and therefore psychologists, are more similar than different with regard to mind style.

The challenge of the urgent directive contained in the following statement must be taken up: " The solution to the problems of diversity cannot be more fragmentation. As a science and as a discipline, psychology must continue to seek the common threads that connect and unite" (Fowler, 1990, p. 3).

Some researchers (Watkins, 1983) do believe that the distinctions and boundaries among the speciality areas of psychology will gradually dissipate and finally disappear. The advantages of this are apparent: "With a proper sense of identity, the unhealthy tensions between scientific practices and clinical praxis would be removed and the training of psychologists would be integrated and more harmonious ..." (Giorgi, 2000, p. 57).

In order to further address the realities and implications raised by this thesis, the ensuing recommendations could be considered.

The replication of the study is advisable, using larger samples, and at all other South African institutions where similar programmes are offered. This is needed for the corroboration of the findings concerning the relationship of mind style with these four specialization fields and

categories of registration in South African psychology. It is therefore hoped that this study will only be the beginning of similar research at other universities, ensuring a more representative and holistic account.

The Gregorc Style Delineator may be an invaluable tool for future research in the exploration of vocational choice. The identification of mind style, by means of this instrument, could make an important contribution to the selection process that is part of acceptance into any psychology masters programme: the profile of applicants' characteristics (based on their dominant mind styles), and 'suitability' could be greatly enhanced, contributing ultimately in selecting the 'right' person and matching them appropriately.

It is further recommended that the findings of this thesis be entered as evidence in support of the argument that psychologists are more similar than different, at least in one aspect of their personalities, and that it be used in the ongoing discussion and debate concerning the re-definition of the identity and role of psychologists and registration categories in South African psychology. According to Gregorc (1985), a balanced Style Delineator score is an indication of 'well-roundedness', and that, statistically, such people constitute only about five percent of the population. If the mind style profile of the sample in this study were a person (see Figure 3), such a person would have tremendous power in virtually all four channels, and could do virtually anything, working effectively in all channels. The ensuing unique style, resulting from this "glorious combination" (Gregorc, D., 1997, p. 45), should therefore be acknowledged, celebrated, and used to enhance the mission and relevance of the psychology profession and the most efficacious use of its psychologists.

The title of this thesis, as is the title of Matarazzo's (1987) article, could very well have been, "There is only one psychology, no specialities, but many applications". Super and Bohn (1970), more than three decades ago already, concluded: "Psychologists are more similar to other psychologists than they are to men [sic] in general" (p. 90). Fitzgerald and Osipow (1986), citing a 1983 study, quote as follows:

The ETS [Educational Testing Service] study found relatively few differences among psychologists in various work settings, thus supporting the view that the four major specialities (i.e. clinical, counseling, school, and industrial/organizational [I/O] do not differ substantially from one another - although of the four, the I/O speciality appears the most distinctive. (p. 535)

The findings of this thesis, nearly eighteen years later, echo the findings of the ETS study.

Gregorc (1998) believes that "every human being is endowed with a uniquely balanced and proportioned set of mental energies and mind channels for integrating with the world" (p. 6). It is hoped that all psychologists, living the actualities and striving to fulfil the potentialities of their mind style profiles, be aligned with and united in their professional mission - the pursuit of psychological well-being for all.

REFERENCES

- Aaron, S., & Skakun, E. (1999, March). Correlation of students' characteristics with their learning styles as they begin medical school. Academic Medicine, 74, (3), 260-262.
- Anthony, W. (1999). From teacher to EP: The metamorphosis. Educational Psychology in Practice, 14, (4), 231-234.
- Arvey, R. D., Bouchard, T. J., Segal, N. L., & Abraham, L. M. (1989). Job satisfaction: Environmental and genetic components. Journal of Applied Psychology, 74, (2), 187-192.
- Atkinson, Jr., G., Murrell, P. H., & Winters, M. R. (1990). Career personality types and learning style. Psychological Reports, 66, 160-162.
- Bargar, R. R., & Hoover, R. L. (1984). Psychological type and the matching of cognitive styles. Theory into Practice, 23, (1), 56-63.
- Biehler, R. F., & Snowman, J. (1995). Psychology applied to teaching. 8th edition. Boston: Houghton Mifflin.
- Blustein, D. L., & Phillips, S. D. (1988). Individual and contextual factors in career exploration. Journal of Vocational Behaviour, 33, 203-216.
- Bokoros, M. A., Goldstein, M. B., & Sweeney, M. M. (1992). Common factors in five measures of cognitive style. Current psychology: Research & reviews, 11, (2), 99-109.
- Bozic, N. (1999). An educational psychologist in practice. Educational Psychology in Practice, 14, (4), 240-242.
- Brandt, R. (1990, October). On learning styles: A conversation with Pat Guild. Educational Leadership, 10-13.
- Brems, C., & Johnson, M. E. (1997). Comparison of recent graduates of clinical versus counseling psychology programs. The Journal of Psychology, 131, (1), 91-99.
- Butler, K. A. (1988). Learning styles. Learning, 17, (4), 30-34.
- Chernyshenko, O. S., & Ones, D. S. (1999). How selective are psychology graduate programs? The effect of the selection ratio on GRE score validity. Educational and Psychological Measurement, 59, (6), 951-961.
- Chippendall, R. J., & Watts J. (1999). An investigation of the pre-eminent assumptions of selectors underlying the admission of candidates to the MA (Clin. Psych.) Programme at the University of the Witwatersrand. South African Journal of Psychology, 29, (3), 109-116.

Claxton, C. S., & Murrell, P. H. (1987). Learning styles: Implications for improving educational practices. College Station, TX: ASHE Association for the study of Higher Education.

Conway, J. B. (1988). Differences among clinical psychologists: Scientists, practitioners, and scientist-practitioners. Professional Psychology: Research and Practice, 19, (6), 642-655.

Conway, J. B. (1992). A world of differences among psychologists. Canadian Psychology, 33, (1), 1-24.

Costa, Jr., P. T., McCrae, R. R., & Holland, J. L. (1984). Personality and vocational interests in an adult sample. Journal of Applied Psychology, 69, (3), 390-400.

Cross, K. P. (1976). Accent on learning. San Francisco: Jossey-Bass Publishers.

Curry, L. (1999, April). Cognition and learning style in medical education. Academic Medicine, 74, (4), 409-413.

Davis, D. S., & Schwimmer, P. C. (1981, February). Style - a manner of thinking. Educational Leadership, 376-377.

De Bello, T. C. (1990). Comparison of eleven major learning styles models: Variables, appropriate populations, validity of instrumentation, and the research behind them. Reading, Writing, and Learning Disabilities, 6, 203-222.

De Wolff, C. J. (1984). The role of the work- and organizational psychologist. In P. J. D.Drenth, H. Thierry, P. J. Willems, & C. J. de Wolff (Eds.), Handbook of work and organizational psychology (pp. 51-79). Chichester: John Wiley & Sons.

Dillon, R. F., & Schmeck, R. R. (Eds.). (1983). Individual differences in cognition, Volume 1. New York: Academic Press.

Drummond, R. J., & Stoddard, A. H. (1992). Learning style and personality type. Perceptual and Motor Skills, 75, 99-104.

Dryden, G., & Vos, J. (1997). The learning revolution. Aylesbury: Accelerated Learning Systems.

Dunn, R., De Bello, T., Brennan, P., Krinsky, J., & Murrain, P. (1981, February). Learning style: Researchers define differences differently. Educational Leadership, 372-375.

Du Toit, D. W. (1992). The registration of psychologists in South Africa. (Masters thesis, University of Stellenbosch).

Ellis, A. K., & Fouts, J. T. (1997). Research on educational innovations. (2nd Ed.). Larchmont, NY: Eye on Education.

Fitzgerald, L. F., & Osipow, S. H. (1986). An occupational analysis of counseling psychology: How special is the speciality? American Psychologist, 41, (5), 535-544.

Fourie, D. (1995). Clinical and counselling psychology: The current situation. Unisa Psychologia, 22, (2), 50-54.

Fourqurean, J. M., Meisgeier, C., & Swank, P. (1990). The link between learning style and Jungian psychological type: A finding of two bipolar preference dimensions. Journal of Experimental Education, 58, (3), 225-237.

Fowler, R. D. (1990, January). Psychology: The core discipline. American Psychologist, 45, (1), 1-6.

Frank, G. (1984). The Boulder model: History, rationale, and critique. Professional Psychology: Research and Practice, 15, (3), 417-435.

Furnham, A. (1988). Values and vocational choice: a study of value differences in medical, nursing, and psychology students. Soc. Sci. Med., 6, 613-618.

Furnham, A. (1992). Personality and learning style: a study of three instruments. Personality and Individual Differences, 13, (4), 429-438.

Furnham, A. (1995). The relationship of personality and intelligence to cognitive learning style and achievement. In D. H. Saklofske & M. Zeidner, (Eds.), International handbook of personality and intelligence (pp. 397-413). New York: Plenum Press.

Furnham, A., Jackson, C. J., & Miller, T. (1999). Personality, learning style and work performance. Personality and Individual Differences, 27, 1113-1122.

Gerdes, L. C. (1992). Impressions and questions about psychology and psychologists. South African Journal of Psychology, 22, (2), 39-43.

Gianakos, I. (1999). Patterns of career choice and career decision-making self-efficacy. Journal of Vocational Behavior, 54, 244 - 258.

Giorgi, A. (2000, Summer). Psychology as a human science revisited. Journal of Humanistic Psychology, 40, (3), 56-73.

Gottfredson, G. D. (1999). John L. Holland's contributions to vocational psychology: A review and evaluation. Journal of Vocational Behavior, 55, 15-40.

Graziano, A. M., & Raulin, M. C. (2000). Research methods: A process of inquiry. Boston: Allyn & Bacon.

Green, D. W., Snell, J. C., & Parimanath, A. R. (1990). Learning styles in assessment of students. Perceptual and Motor Skills, 70, 363-369.

Gregorc, A. F. (1979a). Learning/teaching styles: Their nature and effects. In J. W. Keefe, (ed.), Student learning styles: Diagnosing and prescribing programs (pp. 19-26). Reston, VA: National Association of Secondary School Principals.

Gregorc, A. F. (1979b). Learning/Teaching styles: Potent forces behind them. Educational Leadership, 234-244.

Gregorc, A. F. (1982a). An adult's guide to style. Maynard, MA: Gabriel Systems.

Gregorc, A. F. (1982b). Gregorc style delineator: Development, technical and administration manual. Columbia, CT: Gregorc Associates, Inc.

Gregorc, A. F. (1984). Style as a symptom: A phenomenological perspective. Theory into practice, 23, (1), 51-55.

Gregorc, A. F. (1985). Inside styles: Beyond the basics. Maynard, MA: Gabriel Systems, Inc.

Gregorc, A. F. (1998). The mind styles model: Theory, principles and practice. Columbia, CT: Gregorc Associates, Inc.

Gregorc, A. F., & Ward, H. B. (1977, February). Implications for learning: A new definition for individual. NASSP Bulletin, 61, 20-26.

Gregorc, D. F. (1997). Relating with style. Columbia, CT: Gregorc Associates, Inc.

Grigorenko, E. L., & Sternberg, R. J. (1995). Thinking styles. In D. H. Saklofske & M. Zeidner (Eds), International handbook of personality and intelligence (pp. 205-229). New York: Plenum Press.

Gulliford, A. (1999). Life as an educational psychologist. Educational Psychology in Practice, 14, (4), 237-239.

Gustafson, S. B., & Mumford, M. D. (1995). Personal style and person-environment fit: A pattern approach. Journal of Vocational Behavior, 46, 163-188.

Harasym, P. H., Leong, E. J., Juschka, B. B., Lucier, G. E., & Lorscheider, F. L. (1996). Relationship between Myers-Briggs Type Indicator and Gregorc Style Delineator. Perceptual and Motor Skills, 82, 1203-1210.

Hardy, L. (1990). The fabric of this world: Inquiries into calling, career choice, and the design of human work. Grand Rapids, MI: William B. Eerdmans Publishing Company.

Haste, H., Hogan, A., & Zachariou, Y. (2001, January). Back (again) to the future. The Psychologist, 14, (1), 30-33.

Hayden, R. R., & Brown, M. S. (1985). Learning style and correlates. Psychological Reports, 56, 243-246.

Highhouse, S. (1999). The brief history of personnel counseling in industrial-organizational psychology. Journal of Vocational Behavior, 55, (3), 318-336.

Hirschberg, N., & Itkin, S. (1978, December). Graduate student success in psychology. American Psychologist, 1083-1093.

Hofer, S. M., Stallings, M. C., Reynolds, C. A., Cliff, N., & Russell, G. L. (1994). What criteria define a successful career in psychology? It depends on who you ask. Educational and Psychological Measurement, 54, (2), 447-458.

Hogan, R., & Blake, R. (1999). John Holland's vocational typology and personality theory. Journal of Vocational Behavior, 55, 41-56.

Holland, J. L. (1973). Making vocational choices: A theory of careers. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Holland, J. L. (1996). Exploring careers with a typology: What we have learned and some new directions. American Psychologist, 51, (4), 397-406.

Hoppock, R. (1976). Occupational information: Where to get it and how to use it in career education, career counseling, and career development. (4th ed). New York: McGraw-Hill Book Company.

Howell, D. C. (1999). Fundamental statistics for the behavioural sciences. 4th edition. Pacific Grove: Duxbury Press.

Jackson, C., & Lawty-Jones, M. (1996). Explaining the overlap between personality and learning style. Personality and Individual Differences, 20, (3), 293-300.

James, B. R. (1992). The career orientations of various registration categories of South African psychologists, (Masters thesis, Rand Afrikaans University).

Jonassen, D. H., & Grabowski, B. L. (1993). Handbook of individual differences, learning, and instruction. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Joniak, A. J., & Isaksen, S. G. (1988). The Gregorc Style Delineator: Internal consistency and its relationship to Kirton's adaptive-innovative distinction. Educational and Psychological Measurement, 48, 1043-1049.

Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. Journal of Applied Psychology, 83, (1), 17-34.

Jung, C. G. (1933). Psychological types or The psychology of individuation (H. Godwin Baynes, Trans.). New York: Harcourt, Brace and Company.

Keefe, J. W. (1987). Learning style theory and practice. Reston, VA: National Association of Secondary School Principals.

Keefe, J. W., & Ferrell, B. G. (1990, October). Developing a defensible learning style paradigm. Educational Leadership, 57-61.

Kimble, G. A. (1984, August). Psychology's two cultures. American Psychologist, 39, (8), 833-839.

Kimweli, D. M. S., & Richards, A. G. (1999). Choice of a major and students' appreciation of their major. College Student Journal, 33, (1), 16-26.

Koch, S. (1981, March). The nature and limits of psychological knowledge: Lessons of a century qua "science". American Psychologist, 36, (2), 257-269.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Kriegler, S. (1993). Options and directions for psychology within a framework for mental health services in South Africa. South African Journal of Psychology, 23, (2), 64-70.

Lochner, B. T., & Melchert, T. P. (1997). Relationship of cognitive style and theoretical orientation to psychology interns' preferences for supervision. Journal of Counseling Psychology, 44, (2), 256-260.

Louw, J. (1990). Professionalizing psychology. Pretoria: HSRC.

Lunt, I. (1999, October). Unity through diversity: An achievable goal. The Psychologist, 12, (10), 492-496.

Mann, R. D. (1988). Psychology. In A. W. Chickering (Ed.), The modern American college (pp. 397-416), San Francisco: Jossey-Bass Publishers.

Marchetti-Mercer, M. C., & Cleaver, G. (2000). Genograms and family sculpting: An aid to cross-cultural understanding in training of psychology students in South Africa. The Counseling Psychologist, 28, (1), 61-80.

Matarazzo, J. D. (1987, October). There is only one psychology, no specialities, but many applications. American Psychologist, 42, (10), 893-903.

Matthews, D. B. (1994). An investigation of students' learning style in various disciplines in colleges and universities. Journal of Humanistic Education and Development, 33, 65-74.

Mauer, K. F. (1987). Leporello is on his knees. In search of relevance in South African psychology. South African Journal of Psychology, 17, (3), 83-92.

Merrit, S. L., & Marshall, J. C. (1984). Reliability and construct validity of ipsative and normative forms of the Learning Style Inventory. Educational and Psychological Measurement, 44, 463-472.

Messick, S. (1984). The nature of cognitive styles: Problems and promise in educational practice. The Educational Psychologist, 19, 54-74.

Miller, A. (1991). Personality types, learning styles and educational goals. Educational Psychology, 11, (3 and 4), 217-238.

Mount, M. C., & Muchinsky, P. M. (1978). Person-environment congruence and employee job satisfaction: a test of Holland's theory. Journal of Vocational Behavior, 13, 84-100.

Muchinsky, P. M., Kriek, H. J., & Schreuder, A. M. G. (1998). Personnel psychology. Johannesburg: International Thomson Publishing (Southern Africa) (Pty) Ltd.

Nell, V. (1990). One world, one psychology: Relevance and ethnopsychology. South African Journal of Psychology, 20, (3), 129-140.

Nhlapo, B. (1997). An overview of careers in psychology. Unisa Psychologia, 24, (2), 39-44.

Norcross, J. C., Sayette, M. A., Mayne, T. J., Karg, R. S., & Turkson, M. A. (1998). Selecting a doctoral program in professional psychology: Some comparisons among PhD Counseling, PhD Clinical, and PsyD Clinical psychology programs. Professional Psychology: Research and Practice, 29, (6), 609-614.

O'Brien, T. P. (1990). Construct validation of the Gregorc Style Delineator: An application of Lisrel 7. Educational and Psychological Measurement, 50, 631-636.

O'Brien, T. P. (1991). Relationships among selected characteristics of college students and cognitive style preferences. College Student Journal, 25, 492-500.

O'Brien, T. P. (1994, Fall). Cognitive learning styles and academic achievement in secondary education. Journal of Research and Development in Education, 28, (1), 11-21.

O'Brien, T. P., & Wilkinson, N. C. (1992, June). Cognitive styles and performance on the National Council of State Boards of nursing licensure examination. College Student Journal, 26, (2), 156-161.

Osipow, S. H., & Fitzgerald, L. F. (1996). Theories of career development. Boston: Allyn & Bacon.

Park, T., & Visser, E. M. (1988). Leerstylidentifikasie as basis vir leerstylgedifferensieerde onderwys, South African Journal of Education, 8, (2), 119-126.

Peterson, D. R. (1997). Educating professional psychologists: History and guiding conception. Washington, D. C.: APA.

Peterson, G. W., Sampson, J. P., & Reardon, R. C. (1991). Career development and services: cognitive approach. Pacific Grove, CA: Brooks/Cole Publishing Company.

Pillay, Y. G., & Petersen, I. (1996). Current practice patterns of clinical and counselling psychologists and their attitudes to transforming mental health policies in South Africa. South African Journal of Psychology, 26, (2), 76-80.

Plug, C. (1997). Master's and doctoral training in the Department of Psychology: Comparative and historical data. Unisa Psychologia, 24, (2), 29-35.

Raubenheimer, I. van W. (1981). Psychology in South Africa: Development, trends, and future perspectives. South African Journal of Psychology, 11, 1-5.

Rice, C. E. (1997). Scenarios: The scientist-practitioner split and the future of psychology. American Psychologist, 52, (11), 1173-1181.

Richards, A. C. (1997). Metapsychology: Revisiting the past, confronting the present, serving the future. New Ideas in Psychology, 15, (1), 17-33.

Richter, L. M., Griesel, R. D., Durrheim, K., Wilson, M., Surendorff, N., & Asafo-Agyei, L. (1998). Employment opportunities for psychology graduates in South Africa: a contemporary analysis. South African Journal of Psychology, 28, (1), 1-7.

Richter, R. (1992). A critical evaluation of cognitive style assessment. Pretoria: HSRC.

Riding, R., & Cheema, I. (1991). Cognitive styles - an overview and integration. Educational Psychology, 11, (3 and 4), 193-215.

Schultz, D., & Schultz, S. E. (1998). Theories of personality. 6th ed. Pacific Grove: Brooks/Cole Publishing Company.

Seidel, L. E., & England, E. M. (1999, June). Gregorc's cognitive styles: college students' preferences for teaching methods and testing techniques. Perceptual and Motor Skills, 88, (3, Pt 1), 859-875.

Sims, R. R., Veres III, J. G., & Shake, L. G. (1989). An exploratory examination of the convergence between the learning styles questionnaire and the learning style inventory II. Educational and Psychological Measurement, 49, 227-233.

Sheehan, P. W. (1996). Anticipations ahead for psychology: Looking from past to future. Australian Psychologist, 31, (3), 183-190.

Smith, M. B. (1994, Summer). "Human science" - Really!: A theme for the future of psychology. Journal of Humanistic Psychology, 34, (3), 111-116.

Solas, J. (1996). Why choose psychology as a career? Australian Psychologist, 31, (2), 144-146.

Spector, P. E. (1996). Industrial and organizational psychology: Research and practice. New York: John Wiley & Sons, Inc.

Staats, A. W. (1981, March). Paradigmatic behaviorism, unified theory construction methods, and the zeitgeist of separatism. American Psychologist, 36, (3), 239-256.

Staw, B. M., & Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. Journal of Applied Psychology, 70, (3), 469-480.

Sternberg, R. J. (1994, November). Allowing for thinking styles. Educational Leadership, 36-40.

Sternberg, R. J. (1997). Thinking styles. Cambridge: Cambridge University Press.

Sternberg, R. J., & Grigorenko, E. L. (1997). Are cognitive styles still in style? American Psychologist, 52, (7), 700-712.

Strümpher, D. J. W., Danana, N., Gouws, J. F., & Viviers, M. R. (1998). Personality dispositions and job satisfaction. South African Journal of Psychology, 28, (2), 92-100.

Sugarman, L. (1985, December). Kolb's model of experiential learning: touchstone for trainers, students, counselors, and clients. Journal of Counseling and Development, 64, 264-268.

Super, D. E. (1957). The psychology of careers: An introduction to vocational development. New York: Harper & Brothers.

Super, D. E., & Bohn, M. J. (1970). Occupational psychology. London: Tavistock Publications.

Tipton, R. M., & White, G. L. (1988, January). Factors relating to professional development in beginning graduate students in counseling psychology. The Counseling Psychologist, 16, (1), 111-127.

Tokar, D. M., Fischer, A. R., & Subich, L. M. (1998). Personality and vocational behaviour: A selective review of the literature, 1993 – 1997. Journal of Vocational Behaviour, 53, 115-153.

Torbit, G. (1981). Counsellor learning style: a variable in career choice. Canadian Counsellor, 15, 193-197.

Van der Westhuyzen, T. W. B., & Plug, C. (1987). The training of South African psychologists: Summary of findings of the PASA Council Committee for Training. South African Journal of Psychology, 17, (4), 165-169.

Viljoen, D. J., Beukes, R. B. I., & Louw, D. A. (1999). An evaluation of the training of psychologists at the University of the Free State. South African Journal of Psychology, 29, (4), 201-208.

Visser, E. M. (1986). Die kongruering van leerstyle en onderrigstrategieë in tersiêre onderwys (Doctoral dissertation, University of Stellenbosch).

Wachowiak, D. G., & Simono, R. B. (1996). Psychologists in counseling centers: Fifteen years later. The Counseling Psychologist, 24, (3), 498-507.

Walton, W. T. (1988). The effects of personality types and communication/behaviour styles of single parent mothers on their male children. International Journal for the Advancement of Counseling, 11, (4), 283-291.

Watkins, Jr., C. E. (1983). Counseling psychology versus clinical psychology: Further explorations on a theme or once more around the "identity" maypole with gusto. The Counseling Psychologist, 11, (4), 76-92.

Watts, A. D. (2001). President's corner. PsyTalk, 2, 3.

Wilson, M., Richter, L. M., Durrheim, K., Surendorff, N., & Asafo-Agyei, L. (1999). Professional psychology: where are we headed? South African Journal of Psychology, 29, (4), 184-190.

Witkin, H. A. (1976). Cognitive style in academic performance and in teacher-student relations. In S. Messick & Ass., Individuality in learning (pp. 38-72). San Francisco: Jossey-Bass Publishers.

Wolfe, D. M., & Kolb, D. A. (1979). Career development, personal growth, and experiential learning. In D. A. Kolb, I. M. Rubin, & J. M. McIntyre (Eds.), Organizational psychology: A book of readings. 3rd ed. (pp. 535-604). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Youniss, R., Lorr, M., & Stefic, E. (1985). Motivational patterns among three groups of psychologists. Professional Psychology: Research and Practice, 16, (4), 581-584.

Zunker, V. G. (1981). Career counseling: Applied concepts of life planning. Monterey, CA: Brooks/Cole Publishing Company.

APPENDIX 1

111

Brief Synopsis of the Style Characteristics of the Four Mind Styles

Category	CS Concrete Sequential	AS Abstract Sequential	AR Abstract Random	CR Concrete Random
WORLD OF REALITY	Concrete world of the physical senses	Abstract world of the intellect based upon concrete world	Abstract world of feeling and emotion	Concrete world of activity and abstract world of intuition
ORDERING ABILITY	Sequential step-by-step linear progression	Sequential and two-dimensional; tree-like	Random nonlinear and multi-dimensional	Random three-dimensional patterns
VIEW OF TIME	Discrete units of past, present, future	The present, historical past, and projected future	The moment: time is artificial and restrictive	Now: total of the past, interactive present, and seed for the future
THINKING PROCESS	Instinctive, methodical, deliberate, structured	Intellectual, logical, analytical, rational	Emotional, psychic, perceptive, critical	Intuitive, instinctive, impulsive, independent
VALIDATION PROCESS	Personal proof via the senses; accredited experts	Personal intellectual formulae; conventionally accredited experts	Inner guidance system	Practical demonstration; personal proof; rarely accepting of outside authority
FOCUS OF ATTENTION	Material reality; objects of value	Knowledge facts, documentation	Emotional attachments, relationships, and memories	Applications, methods, processes and ideals
CREATIVITY	Product, prototype, refinement, duplication	Synthesis, theories, models and matrices	Imagination, the arts, refinement, relationships	Intuition, originality, inventive, and futuristic
APPROACH TO CHANGE	Slightly adverse; speculative, hesitant and slow	Notoriously indecisive, cross-checks, deliberation, fence-straddler	Subject to emotions, level of interest; critical or impressionable	Open and amenable, often instigator, "rolling stone", "trouble shooter"
APPROACH TO LIFE	Realist, patient, conservative, and perfection-oriented	Realist; serious, determined, logical, and intellectual	Idealist; emotional, exuberant, transcendent, and intense	Realist/idealist; telescopic attitudinal, inquisitive, and independent
ENVIRONMENTAL PREFERENCE	Ordered, practical, quiet, stable	Mentally stimulating, ordered and quiet, non-authoritative	Emotional and physical freedom; rich; active and colourful	Stimulus-rich, competitive, free from restriction, amenable
USE OF LANGUAGE	Literal meaning and labels; succinct, logical	Polysyllabic words; precise, rational; highly verbal	Metaphoric, uses gestures and body language; colourful	Informative, lively, colourful; "words do not convey true meaning"
PRIMARY EVALUATIVE WORD(S)	Good	Excellent	Super, Fantastic, Out-Of-Sight, Dynamite	Superior, Great

(Gregorc, 1982, p.39)

biographical and information questionnaire

please indicate with a ✓ the group_(group 1, 2, or 3), year_(where applicable MI or MII), and specific field of specialisation_(CLIN, COUNS, EDUC, INDUS) most relevant to you :

NB! No more than one group may be chosen

GROUP 1		GROUP 2	
MI		MII	
CLIN	COUNS	CLIN	COUNS
EDUC	INDUS	EDUC	INDUS

contact details

ADDRESS:	TEL. NO.: w. h.
	FAX NO.:
	CELL:
	E-MAIL:
CODE:	

personal information

GENDER: M / F	DATE OF BIRTH: DD / MM / YYYY
MARITAL STATUS:	AGE:
NATIONALITY:	
HOME LANGUAGE:	OTHER LANGUAGES _{please elaborate}

Gregorc Style Delineator

DIRECTIONS

Before starting with the word matrix, carefully read all seven of the following directions:

1. Reference Point. You must assess the relative value of the words in each group using your SELF as a reference point; that is, who you are deep down, NOT who you are at home, at work, at school or who you would like to feel you ought to be. **THE REAL YOU MUST BE THE REFERENCE POINT.**
2. Words. The words used in the Gregorc Style Delineator matrix are not parallel in construction nor are they all adjectives or all nouns. This was done on purpose. Just react to the words as they are presented.
3. Rank. Rank in order the ten sets of four words. Put a "4" in the row above the word in each set which is the best and most powerful descriptor of your SELF. Give a "3" to the word which is the next most like you, a "2" to the next and a "1" to the word which is the least descriptive of your SELF. Each word in a set must have a ranking of 4, 3, 2 or 1. No two words in a set can have the same rank.

Example

	4
A	sun
B	2
	moon
C	3
	stars
D	1
	clouds

4 = MOST descriptive of you
1 = LEAST descriptive of you

4. React. To rank the words in a set, react to your first impression. There are no "right" or "wrong" answers. The real, deep-down you is best revealed through a first impression. Go with it. Analyzing each group will obscure the qualities of SELF sought by the Delineator.
5. Proceed. Continue to rank all ten vertical columns of words, one set at a time.
6. Time. Recommended time for word ranking: 4 minutes.
7. Start.

Name

	1	2	3	4	5
A	<input type="checkbox"/> objective	<input type="checkbox"/> perfectionist	<input type="checkbox"/> solid	<input type="checkbox"/> practical	<input type="checkbox"/> careful with detail
B	<input type="checkbox"/> evaluative	<input type="checkbox"/> research	<input type="checkbox"/> quality	<input type="checkbox"/> rational	<input type="checkbox"/> Ideas
C	<input type="checkbox"/> sensitive	<input type="checkbox"/> colorful	<input type="checkbox"/> non judgmental	<input type="checkbox"/> lively	<input type="checkbox"/> aware
D	<input type="checkbox"/> intuitive	<input type="checkbox"/> risk-taker	<input type="checkbox"/> insightful	<input type="checkbox"/> perceptive	<input type="checkbox"/> creative

	6	7	8	9	10
A	<input type="checkbox"/> thorough	<input type="checkbox"/> realistic	<input type="checkbox"/> ordered	<input type="checkbox"/> persistent	<input type="checkbox"/> product oriented
B	<input type="checkbox"/> logical	<input type="checkbox"/> referential	<input type="checkbox"/> proof	<input type="checkbox"/> analytical	<input type="checkbox"/> judge
C	<input type="checkbox"/> spontaneous	<input type="checkbox"/> empathy	<input type="checkbox"/> attuned	<input type="checkbox"/> aesthetic	<input type="checkbox"/> person oriented
D	<input type="checkbox"/> trouble shooter	<input type="checkbox"/> innovative	<input type="checkbox"/> multi-solutions	<input type="checkbox"/> experimenting	<input type="checkbox"/> practical dreamer

woordbetekenis: gregorc style delineator

1. <i>Objective</i> <i>Evaluative</i> <i>Sensitive</i> <i>Intuitive</i>	Onbevooroordeeld Waardebepalend Vatbaar vir gewaarwordings Gegronde op intuïsie of ingewing
2. <i>Perfectionist</i> <i>Research</i> <i>Colourful</i> <i>Risk-taker</i>	Persoon wat volmaaktheid nastrewe Krities of noukeurig Kleurryk, d.w.s. wat interessant, belangwekkend, treffend, lewendig is Waaghals
3. <i>Solid</i> <i>Quality</i> <i>Non-judgemental</i> <i>Insightful</i>	Eg, deeglik Kwaliteit Nie beoordeelend of beslissend nie Met begrip of insig
4. <i>Practical</i> <i>Rational</i> <i>Lively</i> <i>Perceptive</i>	Prakties Rasioneel Lewendig Waarnemend
5. <i>Careful with detail</i> <i>Ideas</i> <i>Aware</i> <i>Creative</i>	Hanteer fynere besonderhede versigtig Ideeë Bewus Kreatief
6. <i>Thorough</i> <i>Logical</i> <i>Spontaneous</i> <i>Trouble shooter</i>	Deeglik Logies Spontaan Steuringsoeker
7. <i>Realistic</i> <i>Referential</i> <i>Empathy</i> <i>Innovative</i>	Gee die werklikheid onverbloemd weer Hou met verwysingsverband Empatie of meeleving Vernuwend
8. <i>Ordered</i> <i>Proof</i> <i>Attuned</i> <i>Multi-solutions</i>	Geordend Bewys Ingestel op Baie oplossings
9. <i>Persistent</i> <i>Analytical</i> <i>Aesthetic</i> <i>Experimenting</i>	Volhardend Ontledend Esteties Eksperimenteer
10. <i>Product oriented</i> <i>Judge</i> <i>Person oriented</i> <i>Practical dreamer</i>	Produkgeoriënteerd Beoordeel of beoordeelaar Persoongeoriënteerd Praktiese dromer

Visser, 1986

APPENDIX 4.1

119

P. O. Box 22
SOMERSET WEST
7129

Tel. Nr.: 021 - 855 1210
Fax Nr.: 021 - 855 2917
E-Mail: lienie@kingsley.co.za

Dear Friend

Why did you choose PSYCHOLOGY as a profession? Why did you choose your specific SPECIALIZATION FIELD? Do you know what MIND STYLE you have? Would you like to find out and obtain a personal Mind Style Profile? Your input is very important and *I need your help!*

My name is Charlene Reinecke and I am conducting masters research in the Department of Psychology at the University of Stellenbosch, studying the alignment of Anthony Gregorc's Mind Styles and some categories of psychologists in South Africa. I am including in my research masters students in four of the five professional psychology registration categories in South Africa, namely Clinical, Counseling, Educational and Industrial/Organizational Psychology. Won't you please take the opportunity to contribute valuable information to add to the understanding of possible correlations between specific mind styles and specialization categories? The findings of this study could be useful especially in view of current and proposed changes in the structure of Psychology in South Africa, with important implications for the training of future psychologists.

To take part in this study, you are asked to complete a short *Biographical and Information Questionnaire* and the *Gregorc Style Delineator*. After carefully reading the instructions, the word matrix should not take more than five minutes to complete. Please be assured of full confidentiality. Should you be interested in obtaining further information or a copy of the summary of your particular Mind Style Profile, please feel free to contact me.

I hope you find it possible to help me with this project. This is your chance to respond and speak as a representative of your particular specialization group.

Thank you so much for your help!

With much appreciation,

Charlene Reinecke

P.S. Why not complete the questionnaire and Delineator now while it is on your mind? This important study cannot be done without your help! Many thanks.

APPENDIX 4.2

120

P. O. Box 22
SOMERSET WEST
7129

Tel. Nr.: 021 - 8551210
Fax Nr.: 021 - 8551210
E-mail: lienie@kingsley.co.za

23 February 2000

Dear Friend

About a month or so ago I requested your assistance in contributing some information towards some masters research I am currently conducting - the alignment of Gregorc's classification of Mind Styles and categories of psychologists in South Africa. You were specifically asked to fill out and complete a *Biographical and Information Questionnaire* and the *Gregorc Style Delineator*.

If you have already responded and posted both the questionnaire and the delineator back to me, THANK YOU SO MUCH! If you have not had the chance to do so, I would really appreciate it if you could do so before the end of next week, the **3rd of March 2000**. If you have not received the above request, or perhaps have 'misplaced' it, please feel free to contact me, or to leave your name and address with the Department Secretary.

Remember that you can obtain some interesting information concerning your dominant mind style!

Your prompt response will be *greatly appreciated!*

With sincere thanks,

Charlene Reinecke

APPENDIX 4.3

121

P.O. Box 22
SOMERSET WEST
7129

Tel. Nr: 021 - 8551210
Fax Nr: 021 - 8552917
E-mail: lienie@kingsley.co.za

9 May 2000

Dear Friend

This is a last, earnest, very urgent plea for your assistance! At the beginning of the year, and then again in February, I requested your help in contributing some information towards masters research I am currently conducting.

Just to refresh your memories - I am investigating the alignment of Anthony Gregorc's Mind Styles Theory with some categories of psychologists in South Africa, namely, Clinical, Counselling, Educational and Industrial Psychology. As you are the current, important representatives of these four registration specialization categories, I desperately need your input!

It will take only approximately **ten minutes** of your time to fill out and complete a *Biographical and Information Questionnaire* and the *Gregorc Style Delineator*. Please remember that I will be happy to send you a copy of your resultant Mind Style Profile, as well as a summary of your dominant mind style characteristics should you so wish.

I would be eternally grateful if you could find the time to respond immediately, but at the latest **before** the end of next week, the **19th of May**. Please return the envelope with its completed contents to the Department Secretary (Educational Psychology), or to Central Reception (Ms. Stuurman).

With great appreciation and sincere thanks,

Charlene Reinecke