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IMPLEMENTING LEARNING STYLE FLEXIBILITY FOR CHANGE OF FACILITATION STRATEGIES IN HIGHER EDUCATION

by

Helen Mariska von Maltitz

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Supervisor: Dr P. Du Toit

Co-supervisor: Mrs N. Hislop-Esterhuysen

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Reach for a dream
Wish on a star
Follow your dreams
No matter how far.
Sprinkle desire
On hopes that are new
May all your dreams
And wishes come true!

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ABSTRACT

This dissertation discusses a study that I carried out using action research methodology to answer to the research question; to what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education? The Mind Dynamix Profile® instrument is used as a new and innovative profile instrument that has been developed in South Africa. Although the instrument can be used in a variety of circumstances, this research focuses on its use an instrument to facilitate reflection in the context of lecturers in a Private Higher Education Institution.

A total of nine research subjects participated in this research project. As is often the case with action research the process of research was flexible and had to be adapted to the circumstances in which I, as the researcher, found myself.

Through the process of doing this research I learned that the Mind Dynamix Profile® is a valuable tool for identifying areas of strength and areas of development among lecturers. Though the lecturers' profiles varied, there were some common variables in their genetic profiles. However, the most important part of knowledge of the profile lies not in knowing the genetic profile, but rather in lecturers using that baseline knowledge to adapt their style of facilitating learning to the extent where they are able to accommodate the learning styles of all the students in the classroom. With the Mind Dynamix Profile® this flexibility is known as whole brain and whole body learning.

The results of this study provide evidence that the Mind Dynamix Profile® is indeed a valuable instrument that assists in developing learning style flexibility and when used correctly, allows for definite change of facilitation strategies in the context of

higher education. However, for lecturers to adapt these areas of development effectively a mentoring and coaching process needs to be implemented in conjunction with reflective tools. Although all the lecturers showed some sign of reflection on their style of facilitating learning, only two research subjects embraced the action research process to the point of deep, constructive reflection.

Action research does not look only on the processes of the lecturers involved in this study, but more importantly on my own change of practice as a result of this research. My intention was to improve my own professional practice in addition to involving various lecturers in order to enhance their learning experience. Through the process of implementing this research I learned to reflect on my own values, attitudes and relationships with lecturers as they impacted on my practice. I believe that I have achieved reflective competence by demonstrating an ability to integrate and connect my own performance and decision making with understanding, and that I am successfully able to adapt, explain and change my style of facilitating learning and conducting research, when challenged by unforeseen circumstances.

KEY WORDS

Mind Dynamix Profile®, reflection, learning flexibility, adapt, sensory dominance, motor dominance, input, processing, output, lecturers, facilitating learning, higher education

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CHAPTER 1
INTRODUCTION

> By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third by experience, which is the bitterest.
>
> Confucius (551 BC - 479 BC) Chinese Philosopher

During the last decade the term reflection has been widely used in educational practice (Boody, 2008:498) and it is a skill that lecturers should be competent in. Reflective competence is defined as “one’s ability to identify and critically scrutinise one’s values and one’s ability to formulate one’s own internal standards of decision and action” (Morreim, 1983:231). This should lead the lecturer to a perspective where he/she asks the question, “How do I improve my work?” (McNiff, 2000:5). This study views reflective competence by the lecturer as an important tool for professional development. At a time when there is concern about educational practices in South Africa, there is a need for a collaborative study to explore more deeply what reflective competence is and how it can be managed by lecturers to improve their practice facilitating learning. This research focuses on the use of the Mind Dynamix Profile® (De Jager, 2003) as an instrument for reflection among lecturers in higher education, and in so doing, investigates change in their style of facilitating learning.

1.1 AN INNOVATIVE RESEARCH IDEA

This research is innovative because it is the first time that the Mind Dynamix Profile® is used as an instrument for lecturers to critically reflect on their practice of facilitating learning. The Mind Dynamix Profile® may provide a basis for the development of self awareness and input on what can be done to change and improve a style of facilitating learning to the point where lecturers are "adept at their craft". Hugo (2005:79) describes lecturers who are "adept at their craft" as lecturers who are adept in their content knowledge, pedagogic knowledge and pedagogic content knowledge and thus have a quality to their facilitating of learning that demonstrates excellence in their performance as recognised by their peers. This level of competence is also viewed as self mastery which is achieved through the process of professional development. Professional development is seen as the professional growth a lecturer undergoes as a result of gaining increased experiences and through examining his or her lecturing systematically (Glatthorn, 1995:41). According to Glatthorn (1995:41) it is also broader than both staff development and career development, and Villegas-Reimers (2003) says that among other things, the lecturer is conceived as a reflective practitioner in a collaborative process. This research then explores the ability of the lecturer to potentially change his/her practice of facilitating learning through the use of the Mind Dynamix Profile®. This process may raise a further potential question, namely is there a specific Mind Dynamix Profile® for facilitators who are "adept at their craft"?

1.2 RESEARCH QUESTION

The innovative research idea above leads to the following research question:

To what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education?

1.2.1 CRITICAL QUESTIONS

The following critical questions emanate from the research question:

What are the lecturers' Mind Dynamix Profiles®?

How does knowledge of the Mind Dynamix® Profile aid lecturers in developing professional competence?

How does knowledge of the Mind Dynamix Profile® influence the lecturer's style of facilitating learning?

How can knowledge of the Mind Dynamix Profile® influence a lecturers' ability for reflection?

What is the link between reflective competence and change in practice of facilitating learning in higher education?

Is there a specific Mind Dynamix Profile® that reflects lecturers who are excellent at facilitating learning?

1.3 RATIONALE

According to the Department of Education (DoE) in South Africa, the ultimate aim of the *Norms and Standards for Educators* (South Africa DoE, 2000) is to identify

the main strengths and weaknesses of each educator and lecturer and to indicate what kind of training is needed to improve their performance. The policy indicates that both conceptual and content knowledge, as well as pedagogical knowledge are necessary for effective teaching, together with the lecturer's willingness and ability to reflect on practice (South Africa, DoE 2000:19). This then places the responsibility for professional development on the lecturer.

In response to this, Slabbert (2003:2) states that a cornerstone of the *Norms and Standards for Educators* (South Africa DoE, 2000) is the notion of applied competence, and its associated assessment criteria. It is expected that all lecturers should evaluate themselves against these competencies. These competencies should be developed to a greater or lesser extent depending on the purpose and nature of the learning that they facilitate, so that they can add an element of quality assurance to their educational practice. He emphasises that applied competence is the overarching term for three interconnected kinds of competence (ibid:2):

> *Practical competence* is the demonstrated ability, in an authentic context, to consider a range of possibilities for action, make considered decisions about which possibility to follow, and to perform the chosen action.
>
> It is grounded in *foundational competence* where the lecturer demonstrates an understanding of the knowledge and thinking that underpins the action taken; and is
>
> integrated through *reflective competence* in which the lecturer demonstrates an ability to integrate or connect performances and decision-making with understanding and with an ability to adapt to change and unforeseen circumstances and to explain the reason behind these adaptations.

All National Qualification Framework (NQF) qualifications such as those offered in higher education require lecturers to provide a mix of practical, foundational and reflective competencies in the various roles that they play. The applied competency skills should be relevant to each of the seven roles that the educator/lecturer should be able to perform. In this study the term 'educator' is replaced by the term 'lecturer' since the context of the study is higher education and the word lecturer is globally used for higher education practitioners, despite South African policy favouring the word educators. Where appropriate authors' work cited in this study that would refer to 'educator' will be adapted and applied to the higher education context by referring to 'lecturer'. The seven roles of the lecturer are:

Learning mediator
Interpreter and designer of learning programmes and materials
Leader, administrator and manager
Scholar, researcher and lifelong learner
Community, citizenship and pastoral role
Assessor
Learning area/subject/discipline/phase specialist

The main focus of this research will be the role of the lecturer as a learning mediator, as well as to a lesser degree the role as interpreter and designer of learning programmes, assessor and lifelong learner. In the role of learning mediator, the lecturer will reflect on his/her skill at facilitating learning interventions in a manner which is sensitive to the diverse needs of the students, and will adapt learning environments that are contextualised (Slabbert, 2003:5). Slabbert continues to suggest that within this role the lecturer should also demonstrate sound knowledge of his/her subject content and various principles, strategies and resources appropriate to teaching in a South African context. It is important that the lecturer continually reflects on how he/she well achieves these skills. The context of the proposed research draws on lecturers who work within a Private Higher

Education Institution, lecturing courses in business and organisational skills within the public and private economic sectors in South Africa.

Harley, Barasa, Bertram, Mattson and Pillay (2000) have conducted extensive research on the seven roles of the lecturer. Two of these research findings are highlighted as they are of particular interest to this study. Firstly, within the role of learning mediator, lecturers displayed strong foundational and practical competencies, but less in reflective competencies (ibid:6). This links with similar findings by Jessop (1997:241) where she concludes that her research

> revealed missing frames of thought between rational and instrumental, where curriculum development, ownership of teaching and learning, and a language of reflection is absent.

Secondly, Harley et al. (2000:7) have found that some lecturers display *something extra* in their teaching, which is an undefined quality that elevates lecturers to an exceptional level of effectiveness. They refer to:

> That crucial part of education that has to do with the classroom interaction of student and teacher with extraordinary ability of teachers to generate sparks of learning, even in the most auspicious circumstances.

Like teachers in a school, the lecturers in higher education institutions should have an extraordinary ability to promote high quality learning amongst their students. In other words the lecturer is expected to display applied competence in his/her field, but research has indicated that while lecturers may in many cases have practical and foundational competence, typically reflective competence is lacking. Without reflective competence the lecturer is unable to critically scrutinise his/her values and actions and so formulate internal standards of judgement and action (McNiff, 2002:144). The Mind Dynamix Profile® provides the lecturer with insights on

his/her practice of facilitating learning, stressing both its strengths and areas of development, and with guided reflection allows the lecturer to adapt his/her style to utilise the most suitable style of facilitating learning for each learning situation.

1.4 THEORETICAL FRAMEWORK

The following mind map places the theoretical framework in perspective. The learning context is grounded within an Outcomes Based Education (OBE) philosophy. The shaded areas of the mind map show the context of the research with the main focus being on the professional development of lecturers through the combination of their reflective competence and their Mind Dynamix Profiles®.

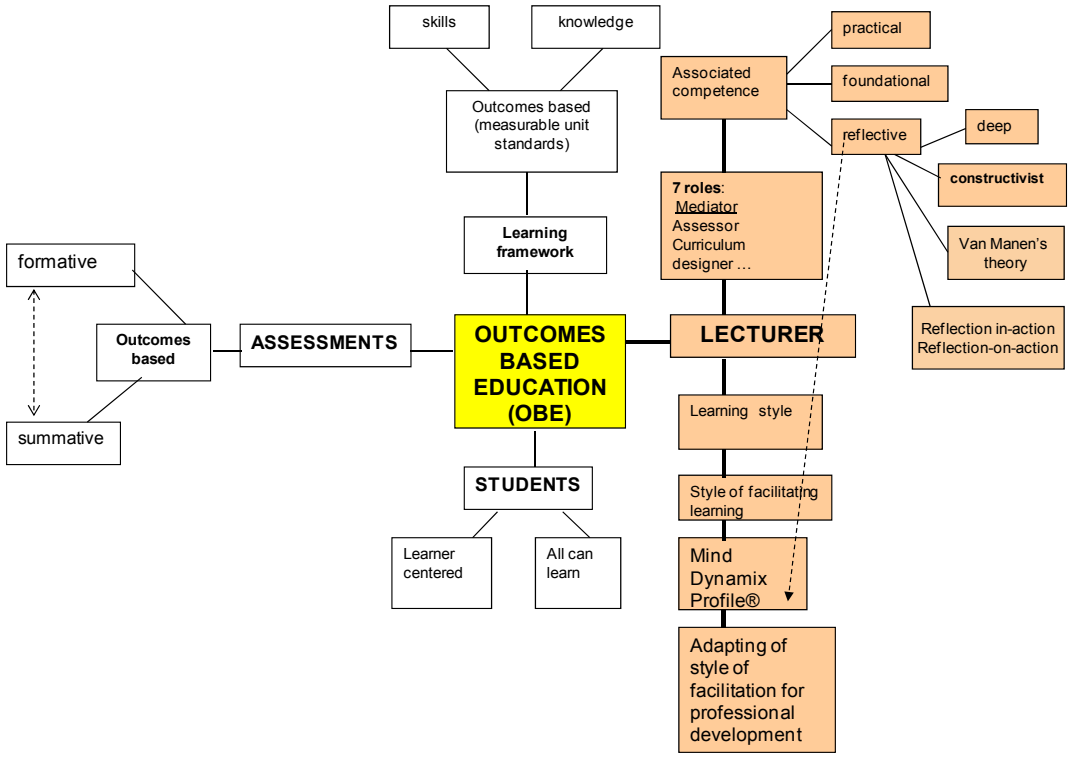


Figure 1.1 Mind map showing the theoretical context of the research

1.4.1 THE LEARNING CONTEXT

The Private Higher Education Institution in which the context of this study will take place adheres to the policies of the South African National Qualifications Framework (NQF) and Outcomes Based Education (OBE). Key stakeholders of the organisation are the Council for Higher Education (CHE); South African Qualifications Authority (SAQA) and the various Sector Education and Training Authorities (SETAs). The philosophy of this particular institution is the belief that the degree of synergy and alignment between the goals and objectives of the organisation, the team and the individual determine the success or failure of the organisation. This is illustrated by the Regenesys Integrated Model as illustrated in figure 1.2. According to their philosophy an effective work environment should be characterised by the alignment of organisational systems, strategies, structures and culture and by people who operate synergistically. Central to this model is the individual who behaves holistically on a physical, mental (cognitive), emotional and spiritual level (Regenesys Management, 2009). This implies that the individual lecturer who facilitates learning should be central to the success of the learning experience within the learning environment and that he/she has an obligation to function on a metacognitive level.

According to Marquard (Zuber-Skerritt, 2001:12) systems thinking within action research is the development of a systems orientated, holistic resolution to a complex problem. This study then investigates the Mind Dynamix Profile® as a systematic approach to resolving the complex problem of developing lecturing skills in the process of facilitating learning. The OBE learning environment also advocates a holistic, constructivist approach to learning and it encourages lecturers and students to centre their efforts on demonstrating the achievement of pre-determined outcomes (Dalziel & Gourvenec, 2003). With various changes in educational policy in South Africa over the past few years, the role of the lecturer has moved from one of compliance and conservatism under Apartheid rule, to

potentially be one of autonomy and professional discretion under the new curriculum (Harley et al., 2000:1). In the light of these fundamental changes in philosophy, lecturers are viewed as professionals in their own right who are expected to make decisions in the best interests of their students. This is best done by a lecturer who is able to reach his/her full potential within the context of facilitating learning.

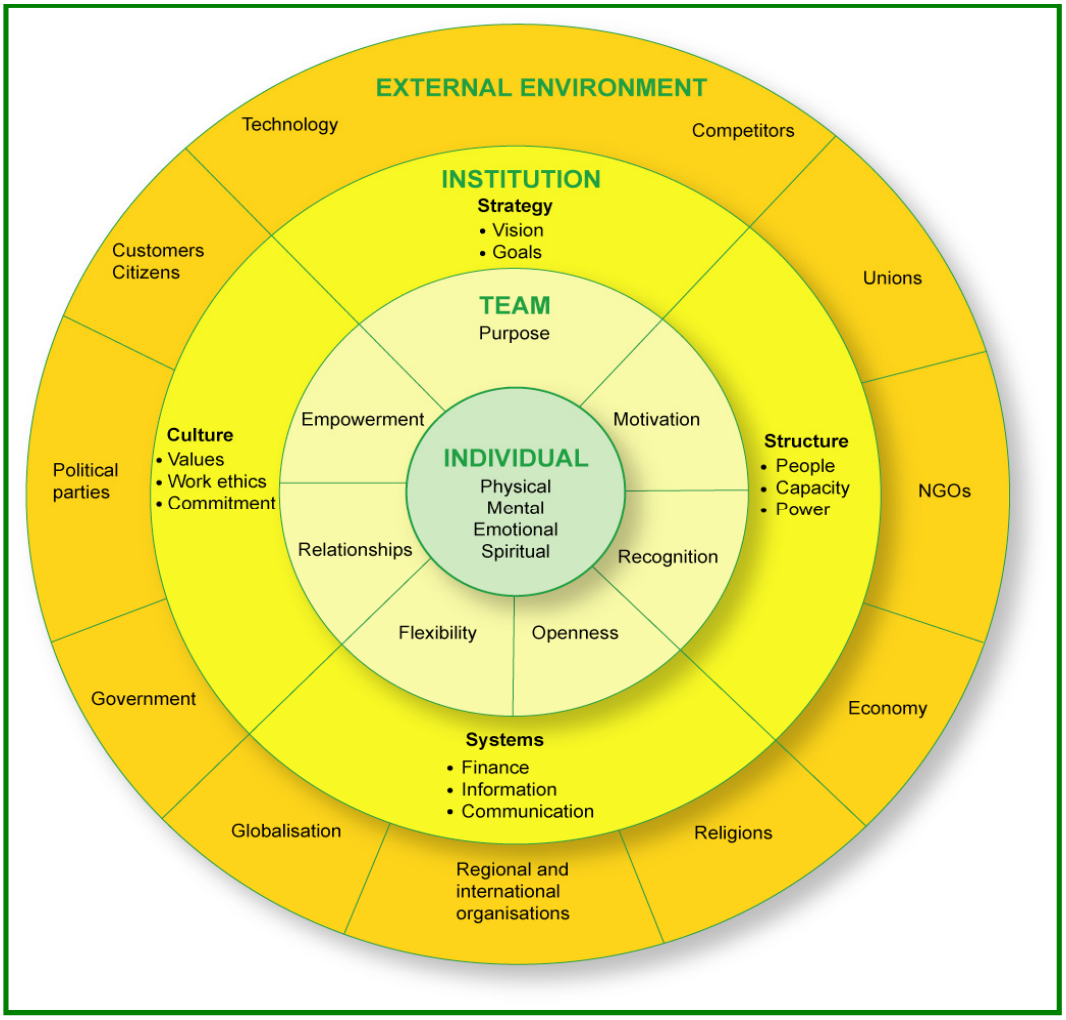


Figure 1.2 Regenesys Integrated Model

1.5 THE STRUCTURE OF THIS STUDY

This dissertation is in 5 chapters. Each chapter contains a number of distinct but interrelated subsections.

Chapter 1 covers the background to this study as well as an introduction to the Mind Dynamix Profile® and my rationale for undertaking this topic. It frames my research question and various critical questions that need to be answered in response to the research question.

Chapter 2 includes a literature study outlining the theoretical framework that has informed this study. Various themes included theories on learning and lecturing styles; current theories on the process of reflection and asset-based learning. The Mind Dynamix Profile® model is also introduced as the instrument for reflecting on change in facilitating learning in higher education.

Chapter 3 outlines my research design as well as the methodology followed during the fieldwork and gathering of data. In this chapter I also discuss my personal worldview through the ontology and epistemology that frames this research. I also outline the various steps that I will use to gather data.

Chapter 4 documents the results of the fieldwork, and includes a discussion and interpretation of the findings.

Chapter 5 is perhaps the most important part of this research study. It is the final chapter of this research in which I present the conclusions that are drawn from the research results and explain their significance, linking the research findings to the literature study and theoretical framework.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter outlines the theoretical framework that has informed this study. It includes a variety of theories on learning and lecturing styles; current theories on the process of reflection and asset-based learning. The Mind Dynamix Profile® model is also introduced as the instrument for reflecting on change in facilitating learning in higher education.

The manner in which a lecturer facilitates the learning process is the final product in an intricate and dynamic process of gathering information from the environment, processing it and ultimately reflecting on it in such a manner as to reconstruct understanding. In the role of facilitating learning the lecturer is involved in the process of information exchange (Bacal, 2003). The lecturer's main role then is to manage *how* the learning process takes place. As the facilitator of learning he/she must also be able to suspend or change the direction of the process when necessary (Ebersole, 2007), according to the requirements and needs of the group involved.

This literature study reveals that the role of the lecturer who facilitates learning goes beyond that of the bearer of information into a role that is as complex as it is flexible in nature. Evidence shows that the converse is also true and that a significant number of lecturers throughout the world are under-prepared for their profession, and that professional development experiences have a significant impact on lecturers work (Villegas-Reimers, 2003:19). This is also supported by a

strong relationship that links the improvement of a lecturer's performance to increasing levels of student achievement (Cohen-Hill as cited in Villegas-Reimers, 2003:19).

How then does a lecturer who facilitates the learning process become "adept at his craft"? In an attempt to answer this question, the determinants of a style of facilitating learning are explored, alternative learning styles are described, and various reflective processes used by lecturers in the process of facilitating learning are investigated. Finally the Mind Dynamix Profile® Instrument is explained and justified as the instrument of choice for reflecting on change in the process of facilitating learning.

2.2 DETERMINING A STYLE OF FACILITATING LEARNING

According to Jarvis (2002) a lecturer's style [of facilitating learning] can influence the form of learning that takes place in the classroom, and may influence and motivate learners more that the teaching method that is used. According to Jones (2004) it can be argued that students could benefit from a lecturer who has the ability to predict; perceive and adapt, however subtly, to changes going on around him or her. Sensitivity to the learning environment is an important part of effective lecturing practices. Yet, according to Evans and Waring (2006:501) lecturer performance training, which is traditionally the method and process of lecturing, is stressed [and assessed] to the exclusion of a lecturer's individual style.

According to Evans and Waring (2006:501), many lecturers are unaware of their predominant style of lecturing, even though this can influence the form of learning that takes place in the classroom (ibid:502). Many lecturers also find it difficult to articulate their understanding of their style of facilitating learning because they lack the vocabulary to do so (ibid:502).

The Centre for the Development of Teaching and Learning at the University of Singapore (NUS, 2008), suggests that the lecturer is both a performer and an educator in the classroom, and a lecture should, ideally, delight as well as instruct the students. Achieving these objectives is by no means easy. Becoming a good lecturer requires conscious effort and adaptation.

Style, such as learning style and lecturing style, is a behaviour that is partly attributable to physiological elements (i.e. preference for seeing as opposed to hearing) and partly to one's conscious and unconscious thoughts and intellectual preferences and these preferences give direction to our actions (Gibble, nd). He proposes that it is intellectually useful to gain insight into one's "styles" because such insight, coupled with reflection, makes your "style" more understandable and therefore more consciously controllable.

This research proposes that a lecturer's style of facilitating learning is based on his/her own learning style (Brown, 2004:522). A prominent definition of learning styles was proposed by Riding and Ryner (Hillberg & Tharp, 2002:15) who see learning style as an individual's repertoire of learning strategies (the way in which learning tasks are habitually responded to) combined with cognitive style (the way information is organised and represented). They maintain that while learning strategies may change over time, the cognitive style does not. This raises the question of whether a lecturing style results from competencies that lecturers are born with or does it result from having manipulated and changed a facilitation style through critical reflection?

This research makes the assumption that the lecturers' baseline style of facilitating learning remains consistent over time as it is genetically determined by a combination of physiological dominances. This is demonstrated through the use of the Mind Dynamix Profile®. The lecturer's style of facilitating learning may however

also be adapted and altered through reflection, thus implementing a possible change and refinement in style of facilitating learning. This research also aims to explore the possibility that there may be a combination of profile variables that predetermine lecturers who are “adept at their craft”.

2.3 THEORIES ON LEARNING STYLES

Before discussing the possible impact of how learning style diversity impacts on style of facilitating learning, the term *learning style* needs to be defined.

According to Ellison (1993:38) learning style is the interplay between the brain and the frame of reference. He defines learning style as:

> that consistent pattern of behaviour and performance by which an individual approaches educational experiences. It is the composite of characteristic cognitive, affective and physiological behaviours that serve as relatively stable indicators of how a student perceives, interacts with and responds to the learning environment. It is formed in the deep structure of neural organisation and personality which moulds and is moulded by human development and the cultural experiences of home, school and society.

MacLean (1990:575) comments on the uniqueness of how humans learn and how their learning manifest in their learning style by stating that

> because of the infinite variations in the way individuals are assembled, it must be assumed that the sentinient properties of any one person, like his or her fingerprints, could never be identical with those of another. It is probable, therefore, that there does not exist or ever will exist one person exactly like another.

From the above it is clear that each lecturer has a unique way of learning, which is called his/her learning style. For the purposes of my study, learning style can be defined as the way in which a lecturer prefers to gather and process information

and the manner in which it influences the way he/she learns and communicates his constructed meaning to students. This in turn impacts on his/her lecturing style.

When facilitating learning, lecturers provide an environment in which they enable learning to occur. The style that is intentionally adopted by the lecturer is an example of the processes used in facilitation. According to Heron (Brockbank & McGill, 1998) these styles could include:

> The traditional hierarchical mode where the lecturer controls the structure, content, method and programme
> The cooperative mode where decision making is shared with the students and
> The autonomous mode where decisions are taken by the students

Educators and psychologists have recognised differences in the way in which lecturers and students assimilate knowledge and skills and process learning, construct meaning and have developed systems for identifying and generalising the diversity in learning styles. Contemporary systems such as the Meyers-Briggs Type Indicator (MBTI) (Hirsh & Kummerow, 1989; Myers & McCaulley, 1985), the Kolb Experiential Learning Model (Wolfe & Kolb, 1984), and The Herrmann Brain Dominance Instrument (Lumsdaine & Lumsdaine, 1995) are examples of useful instruments to generally typify learning styles. Each of these well known learning style theories approach learning from a different perspective and therefore describe different aspects affecting learning style preferences. A brief look at the components of the various learning style theories is necessary to illustrate the diversity of learning styles and to evaluate the effectiveness of the Mind Dynamics Profile®.

2.3.1 LEARNING STYLES - THE MEYERS-BRIGGS TYPE INDICATOR (MBTI)

The purpose of the Myers-Briggs Type Indicator (hereafter referred to as MBTI) is to make the theory of psychological types described by Carl Jung understandable and useful in people's lives (Myers & McCaulley, 1985:1). It is based on the fact that people have preferences for behaviour that are neither good nor bad (Bester, 2001:56), and are based on their perceptions of the world. Most of the existing personality instruments measure personality traits that indicate strengths and weaknesses. On the other hand, personality types as measured by the MBTI, only measure differences of preference. It classifies students according to four characteristics and was derived from Carl Jung's theory of psychological types. Students may be *extroverts* or *introverts*, *sensors* or *intuitors*, *thinkers* or *feelers*, *judgers* or *perceivers*. The application of this model provides data on preferences for these four sets of preferences, resulting in 16 learning styles, each style being a combination of the four preferences (Felder, 1996).

The four basic preferences or psychological dimensions are the following (Hirsch & Kummerow, 1989:4):

Energising - how and where to get your energy
Attending - what you pay attention to when you gather information
Deciding - what system you use when you decide
Living - what type of lifestyle you adopt

Where people get their *energy* from indicates whether they have extroversion (E) or introversion (I) preference. People draw their energy either from the external world of people, activities and things, or from the inner world of ideas, emotions, and impressions (Hirsh & Kummerow, 1989:5; Myers & McCaulley, 1985:2).

The *attending preferences* are referred to as sensing (S) and intuition (N) (Bester, 2001:56). With a sensing preference, a person gathers information by the five senses. The person tends to be more idealistic, giving attention to the practicalities of the here and now. With an intuition preference a person gathers information through his 'sixth sense', which deals with meaning, relationships and possibilities that go beyond the information of his senses (Myers & McCaulley, 1985).

The third category of preferences is the *deciding preferences*, referred to as either thinking (T) or feeling (F) (Bester, 2001:56). Thinking is the preference that relates to organising and structuring information to decide in a logical and objective way. Feeling is related to the preference for organising and structuring information to decide in a personal, value-oriented way (Hirsh & Kummerow, 1989:6).

The fourth category of preferences is the *living preferences*, referred to as judgement (J) and perceiving (P). Judgement does not refer to being judgemental. The judging types seek to deal with their world in a decisive, planned and orderly way, aiming to regulate and control events (Bester, 2001:56). Perceiving types deal with their world in a spontaneous, flexible way, aiming to understand life and adapt to it as they go (Oswald & Kroeger, 1988:17; Myers & McCaulley, 1985:14).

Thus the MBTI describes the components of learning styles as a choice between each of the four preferences:

Energising	-	through extroversion (E) or introversion (I)
Attending	-	through sensing (S) or intuition (N)
Deciding	-	through thinking (T) or feeling (F)
Living	-	through judging (J) or perceiving (P)

2.3.2 LEARNING STYLES - THE KOLB EXPERIENTIAL LEARNING MODEL

One of the most influential information-processing models that is used in higher and professional education is the Experiential Learning Model of Kolb (Wolfe & Kolb, 1984:128-133). Also called Kolb's Learning Cycle, it is based on a series of processes which are continual modifications of habits and ideas as a result of experience.

This model proposes that knowledge results from the combination of two dimensions, namely the dimensions of:

> Grasping information or perceiving it
> Transforming information or processing (Osland, Kolb & Rubin, 2001:43; Malan, 1998:30).

According to this model, students may either grasp information through direct here-and-now-experiences, or transform the information they have grasped through reflective thinking, active experimentation or application of the information (Osland et al., 2001:43; Malan, 1998:30). By combining the two dimensions, Kolb views learning as a four-stage cycle, which is a simple description of how experiences are translated into concepts (Osland et al., 2001: 43; Bester, 2001:40).

This cycle involves four different learning modes namely concrete experience, reflective observation, abstract conceptualisation and active experimentation (Osland et al., 2001:45-46; Wolfe & Kolb 1984:128). Each of these four stages represents a particular way of grasping or transforming information.

Kolb and Fry (1975: 35-6) argue that effective learning entails the possession of four different abilities as indicated on each pole of their model. They are:

concrete experience abilities,
reflective observation abilities,
abstract conceptualisation abilities and
active experimentation abilities

Few people are able to approach the 'ideal' in this respect and rather tend to develop strength in one of the poles of each dimension. As a result they developed a learning style inventory (Kolb, 1984) which was designed to place people on a line between concrete experience and abstract conceptualisation; and active experimentation and reflective observation. The table on the following page indicates the four basic learning styles.

In developing this model Kolb and Fry (1975) have helped to challenge those models of learning that seek to reduce potential to one dimension such as intelligence (Tennant, 1997:91). This could also be seen to be challenged by Gardener's introduction of multiple intelligences (Gardner, 1999). They also recognise that there are strengths and weaknesses associated with each style and that being 'locked into' one style can put a learner and lecturer at a serious disadvantage.

Table 2.1 Kolb and Fry on learning styles (adapted from Tennant, 1997; Swinton, 2006)

LEARNING STYLE	LEARNING CHARACTERISTIC	DESCRIPTION
Converger	Abstract conceptualisation + active experimentation	strong in practical application of ideas can focus on hypo-deductive reasoning on specific problems unemotional has narrow interests solve practical problems, prefer technical tasks, like experimenting and simulation, less interested in interpersonal issues.
Diverger	Concrete experience + reflective observation	strong in imaginative ability good at generating ideas and seeing things from different perspectives interested in people broad cultural interests like to gather information, good at brainstorming, interested in people, see different perspectives, prefer group work, open minded
Assimilator	Abstract conceptualization + reflective observation	strong ability to create theoretical models and excels in inductive reasoning concerned with abstract concepts rather than people concise logical approach, ideas and concepts more important than people, prefer lectures, reading, time to think
Accommodator	Concrete experience + active experimentation	greatest strength lies in doing things more of a risk taker performs well when required to react to immediate circumstances solves problems intuitively hands on, attracted to new challenges and experiences, rely on others instead of doing own analysis, action oriented, set targets work hard in teams to achieve tasks.

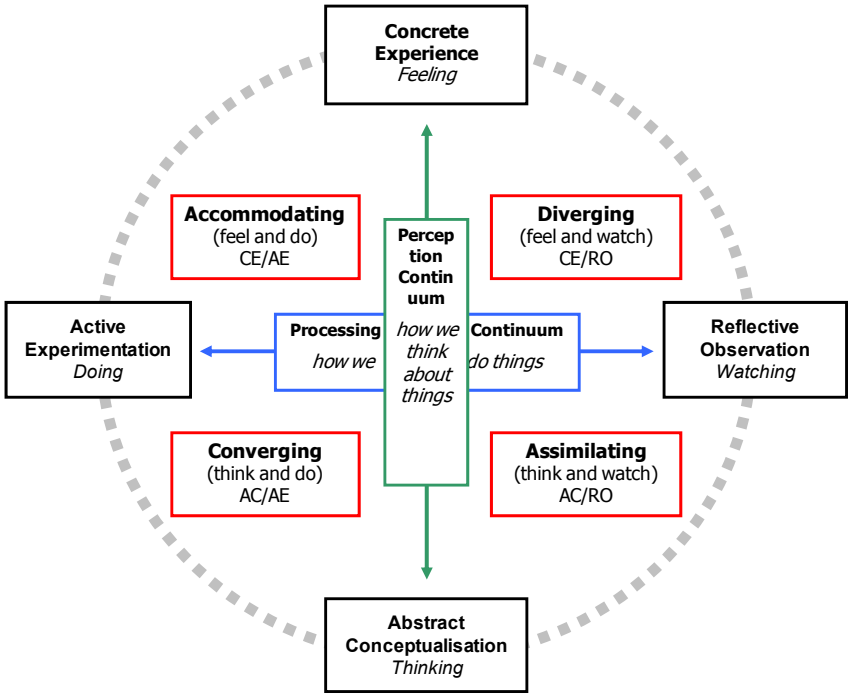


Figure 2.1 Diagram of Kolb learning cycle

Kolb (1984) developed an inventory to classify learning styles using a two axis graph. This is illustrated in the diagram above. On the horizontal axis he distinguishes between Active Experimentation and Reflective Observation, and on the vertical axis between Concrete Experience and Abstract Conceptualisation.

Criticisms of this model are that it pays insufficient attention to the process of reflection and while Kolb's scheme has been useful in assisting in the planning learning activities and in helping to check that learners can be effectively engaged in tasks, it does not uncover the elements of reflection itself (Boud et al., 1985). Dewey (1933) also said that the idea of stages or steps occurring in sequence does not sit well with the reality of thinking, and in relation to reflection a number of processes can occur at once, stages can be jumped.

2.2.3 THE HERRMANN BRAIN DOMINANCE INSTRUMENT (HBDI)

The Herrmann profile is based on areas of brain specialisation and this specialisation is measured by means of the HBDI.

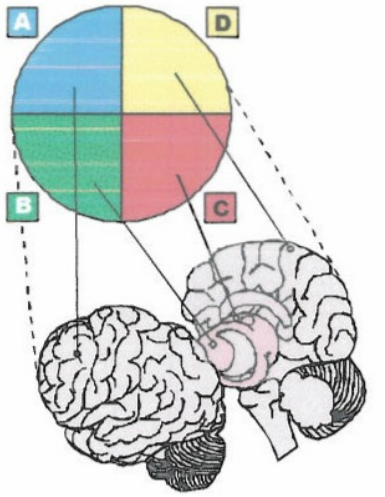


Figure 2.2 The constructs of the HBDI are summarised metaphorically by the rotated triune brain as seen from the back of the head, with emphasis on dual cerebral and limbic hemispheres (Herrmann 1993)

Herrmann's model explores the evolution of left and right brain dominance as well as the theory of the triune brain, to the ultimate development of his metaphoric four quadrant brain theory. Although it did initially start as a physiological model based on the division of the physical brain, it is now a metaphorical model based on people's behaviour (Lumsdaine & Lumsdaine, 1995:80).

Table 2.2 Characteristics of the 4 quadrants of the Herrmann Brain Dominance Instrument (Herrmann 1993)

QUADRANT	CHARACTERISTICS OF THOUGHT PROCESSES	PREFERRED SUBJECTS AND CAREERS
Quadrant A: Intellectual self - Analytical thinking	Thinking is factual, analytical, quantitative, technical, logical, rational and critical. It deals with data analysis, risk assessments, statistics, financial budgets and computation as well as technical hardware, analytical problem solving and making decisions on logic and reasoning. An A-quadrant culture is materialistic, academic and authoritarian. It is achievement based and performance driven.	People who prefer quadrant A thinking also have a preference for subjects in school and certain careers. Preferred subject areas would be arithmetic, algebra, calculus, accounting, science and technology. Lawyers, engineers, computer scientists and physicians. People with A thinking talk "the bottom line"," getting the facts" and "critical analysis". The people are frequently called "number crunchers"; "human machines" and "eggheads".
Quadrant B: Safekeeping self - Sequential thinking	Thinking is organised, sequential, controlled, planned, conservative, structured, detailed, disciplined and persistent. It deals with administration, tactical planning, organisational form, safekeeping, solution implementation, maintaining the status quo and using tried and tested methodologies. The culture is traditional, beaurocratic and reliable. It is production orientated and task driven.	Like their subjects to be structured and sequentially organised. They are planners, beaurocrats, administrators and book keepers. They talk about "we have always done it this way"; "law and order" and "self discipline". They are talked about as "picky", "nose to the grindstone" type of people who are involved in the preferred activities of following directions, detail orientated work, step-by-step problem solving, organisation and implementation.
Quadrant C: Emotional self - Interpersonal thinking	This is a sensory, kinaesthetic emotional interpersonal and symbolic thinker. It deals with awareness of feelings, body sensations, values, music and communications. It is needed for teaching and training. A quadrant C culture is humanistic, cooperative; spiritual; value driven and feelings orientated. Subjects that they like include music social sciences, dance, drama and high skilled sports. They participate in group activities rather than work alone. They become teachers; nurses; social workers and musicians (although quadrant A is also	They talk about "the family"; "teamwork"; "personal growth"; "values" and are viewed as "bleeding hearts"; "soft touch" or 'talk, talk, talk" type of people. They are usually involved the preferred activities of listening to and expressing ideas, looking for personal meaning, sensory input, and group interaction.

	involved with musicians for analysing music scores and evaluating performance).	
Quadrant D: Experimental self - Imaginative thinking	People who are dominant in this quadrant display the preferred activities of looking at the big picture, taking initiative, challenging assumptions, visuals, metaphoric thinking, creative problem solving, long term thinking. They are visual, holistic, innovative, holistic, metaphorical creative, imaginative, conceptual spatial, flexible and intuitive. It deals with futures, possibilities, play, dream, vision, strategic planning, the broader context, explorative, entrepreneurship, inventive and future orientated. It is playful, risk driven and independent.	Prefer arts, (painting and sculpture) as well as geometry, design, poetry, architecture. Entrepreneurs, explorers, artists and playwrights have strong preferences for this style of thinking. Also scientists involved in research and development in medicine, physics and engineering. They "play with an idea"; "see the big picture" or "cutting edge" innovation. They are talked about as "having their heads in the clouds"; being undisciplined and unrealistic dreamers.

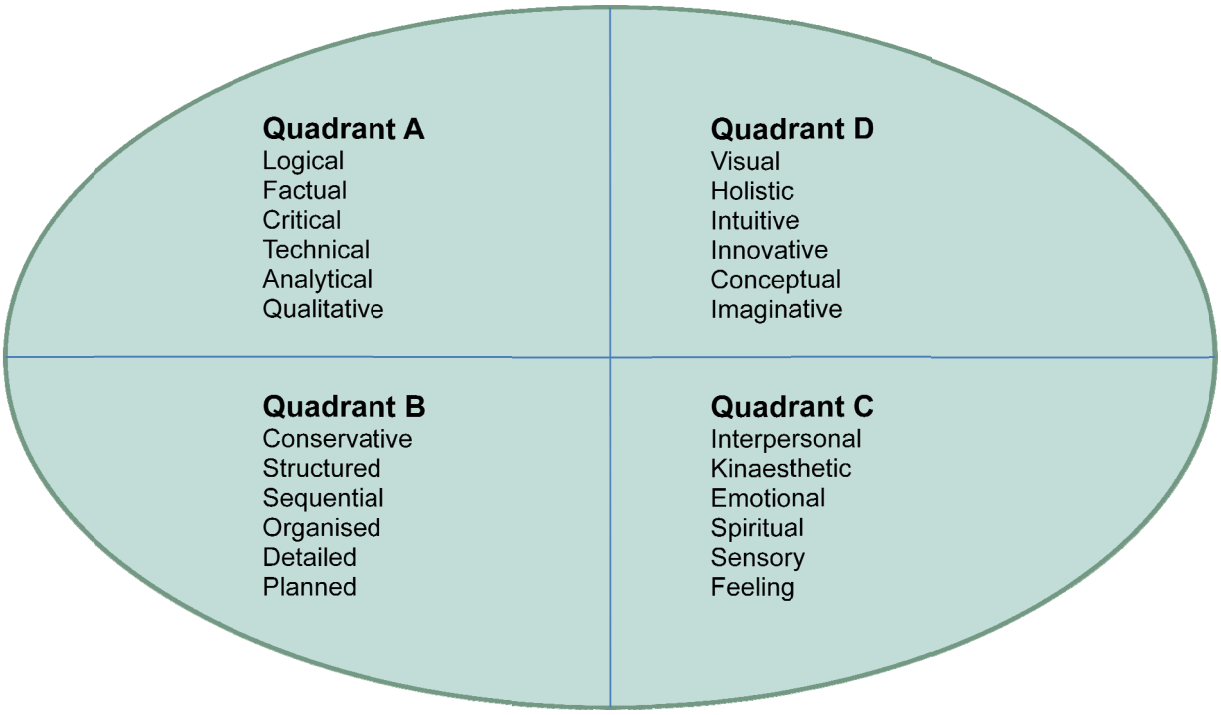


Figure 2.3 The dominant personality characteristics of the four different quadrants of the Herrmann Brain Dominance Instrument

According to Herrmann (1993) it would seem that once you understand the organising principle involved, you observe many things in everyday life that fit the four quadrant model. Although dominance can occur in any one particular quadrant, Herrmann does assert that all people do use all quadrants to varying degrees. After assessing half a million people he found that 7% have a single dominance, 60% double dominance; 30% have triple dominance and only 3% have quadruple dominance (Lumsdaine & Lumsdaine,1995:79). He also found that people are happier and usually do well when their activities and job requirements match their thinking preferences. It can be assumed that this fact is also true for other profile tools.

Brain preference does not equal competence. Competency is achieved through motivation training and practice. People who are operating in their less preferred or less dominant modes experience a sense of unease, but can change these behaviours if they are motivated to do so. If an individual has to perform behaviours that are in the avoidance quadrants it will result in frustration and use of high energy levels from the individuals that are too great (Lumsdaine & Lumsdaine,1995:81).

Herrmann coined the concept of *whole brain thinking* which is a term used to describe the flexibility of thinking styles that can be cultivated in both individuals and organisations allowing for the situational use of all four thinking styles (Herrmann 1993:xix). So although people should appreciate their unique thinking style they should also learn to use their whole brain to respond well to different situations.

According to Herrmann, the following major trends are evident from surveys and research (ibid:75):

Although 81 combinations of preferences exist, there are 12 main brain dominance profiles that are applicable to 80% of the population

Over 90% of Herrmann's data base is multi-dominant

Individuals with the same profiles tend to behave in predictable ways with regard to time; creativity; dress; money; problem solving and intuition

Everyone has at least one primary brain quadrant preference

Individuals with similar profiles tend to communicate more easily with each other even across cultural boundaries

People with similar profiles tend to gather into tribes and may exhibit similar tribal behaviour, both positive and negative, including shutting others out and making war

Problems in groups can often be resolved when people understand their profiles, as well as tribal tendencies and the opportunities that working with a variety of different profiles can open up

The HBDI measures preference of mental activity and this differs from the competency in performing it, even though there is a strong correlation between the two

Although profiles tend to remain consistent over time they can and do change when significant life events and crises intervene (1993:76)

2.4 SUMMARISING LEARNING STYLE DIFFERENCES

Learning style is defined as the way in which a student prefers to approach new information and influences the way students learn and communicate. In a similar manner a style of facilitating learning shows the diversity of ways in which a lecturer will approach and facilitate student learning as is observed by the instruments described above. Instruments such as the Meyers-Briggs Type Indicator (MBTI); The Kolb Experiential Learning Model; The Herrmann Brain

Dominance Instrument are discussed above as examples of common and useful instruments to determine learning style preferences. According to Swinton (2006), Kolb's experiential leaning theory links with the Myers-Briggs Type Indicators according to the following table:

Table 2.3 The link between the similar characteristics of two learning style models

MYERS-BRIGGS TYPE INDICATORS	KOLB LEARNING STYLES
Extraversion and Introversion	Active/Reflective
Thinking and Feeling	Concrete Experience/Abstract Conceptualisation

The learning style instruments discussed all show some validity and are based on a quantitative approach. In my research the focus is on a qualitative approach to identifying learning styles and therefore and alternative learning style instrument called the Mind Dynamix Profile® is investigated. As with all learning style instruments it is designed to determine the style of learning and in no way measures the level of intelligence of an individual. According to my own experience I have found that the Mind Dynamix Profile® is intuitive and logical in its explanation. Unlike the above models, it does not have labels to describe learning style types such as, "imaginative thinking"; "logical/mathematical intelligence"; "pragmatists" and so on. It does however make use of terms of left and right dominances which have come to have behavioural implications in the learning style context. As far as is possible, each Mind Dynamix Profile® is explained as a neutral process and is viewed as an individual's asset to learning. In line with trends in asset based psychology (Ebersöhn & Eloff, 2006:xi), the profile is viewed as an advantage to the lecturer who facilitates learning processes.

2.5 LECTURING STYLES

A review of the literature has revealed that there has been very little published research about lecturing styles and the factors that affect lecturing styles. There may be a number of reasons for this paucity of research. Firstly, there has been a great deal of criticism of the traditional lecture method in the literature and educational researchers may consider it an unpopular focus for their research. In a similar vein, much of the educational research in the past few decades appears to be focused on alternatives to the lecture method such problem-based learning, computer-facilitated learning and small group teaching in particular (Fardon, 2003). Lecturers involved in this particular research study utalise large periods of time where they facilitate learning processes, largely to conduct formative and continuous assessments with the students and so are obliged to consider a variety of alternative lecturing methodologies.

Prosser and Trigwell (1999) propose that in higher education, two parallel approaches to facilitating learning exist. One is focused on the transmission of information and the focus is on the lecturer. Lecturers who adopt this approach tend to be content focused and emphasise the importance of reproducing correct information. The second approach is to bring about conceptual change and is student focused. Lecturers who adopt this style of approach tend to consider the entire leaning process and are concerned with the students' conceptual change.

Ideally it is the responsibility of the lecturer to balance all instruction styles to meet the diversity of needs of the students in a class (Felder, 1996). In reality, discussions and exploration among the lecturers in my study reveals that they know very little about the various learning styles to facilitate learning. For this research the assumption has been made that the lecturing style that each lecturer they adopts is largely influenced by his/her own personal learning style because it models a preferred thinking style about a subject. It is important for

lecturers to identify patterns and tendencies of their style to identify areas of strength and areas of development so that they can adapt their lecturing style for professional development. This can be achieved through the process of reflection.

2.6 WHAT MAKES LECTURERS "ADEPT AT THEIR CRAFT"?

Wilkinson (1997) has identified seven specific characteristics that tend to distinguish the lecturers who excel from those who struggle to achieve proficiency. They are:

To have a genuine desire to help students feel good about themselves and to achieve their desired results

To think quickly and logically, and understand how questions relate to the topic

Communicate clearly and expressively, making specific, precise points, using appropriate levels of energy to build excitement and enthusiasm

Practice active listening skills by engaging a speaker, listening attentively, and asking probing questions

Convey warmth to others with smiles, praises and gestures during interactions

Demonstrate self confidence and being the person that others look to for direction and counsel

Look beyond the narrow focus of the job by having an interest in improving the way that things are done

In order to improve on their level of excellence lecturers need to reflect on their practice of facilitating learning.

In this research study excellence in lecturing takes on a different view to that of Wilkinson. Herrmann (1993:xix) refers to whole brain functioning as an optimal state for lecturing. De Jager (2006:8) makes reference to learning as a life skill which enables a lecturer to adapt and change in order to survive in situations both in and outside the classroom. To achieve this, lecturers need to function in a whole brain and whole body state. This implies that they should have certain flexibility and adaptability that enables them to present information in a manner that is understood by all the learning styles that may be present in a learning opportunity. According to Kolb, Boyadzis and Mainemelis (Sternberg & Zhang, 2001:228) learning style flexibility is a measure of the adaptive flexibility in learning and the degree to which a lecturer can change his/her learning styles to respond to different learning situations. They also state that service orientated jobs such as lecturing demand a high level of flexibility for success.

In this dissertation, the achievement of learning style flexibility by the lecturer so that he/she is able to accommodate a variety of learning opportunities is viewed as the level of excellence to be achieved by lecturers who are “adept at their craft”.

2.7 THEORIES ON REFLECTION

The term reflection is a commonsense idea in our culture and does not owe its existence to any particular theorist. However, work by Schön and Kolb have given reflective practice currency in recent years, encouraging the use and application of the basic principles of reflection on experience to improve a

lecturer's action and professional practice (Hinnet, 2002:5). The depth of reflection needed for this proposed research is important and explained by theories which follow.

The South African Education System has moved from a previously fragmented and racially polarised, profoundly unequal education system of education to a point where the state has developed a comprehensive and ambitious set of education policies (Harley, Barasa, Bertram, Mattson & Pillay, 2000:6) that theoretically should be uniformly applied.

In research conducted by Harley, Bertram and Mattson (2000:6) in KwaZulu-Natal, South Africa, it was found that in the present situation:

> the educator in the role of learning mediator displayed strong foundational and practical competencies, but less with reflective competencies.

The literature further indicates that while lecturers are facilitating learning, they do not reflect on their day-to-day classroom practice. According to Lewis (2008:1):

> Honest self reflection must be done regularly to examine what has worked and what hasn't in the classroom, despite how painful it can sometimes be to look in the mirror. A lack of self reflection results in stagnant teaching.

Eikenberry (2008:3) reiterates the fact that failures to reflect results in a failure to identify patterns; tendencies, generalisations and underlying principles in behaviour which may have negative effects on educational practice and professional development.

While Lewis (2008:1) and Eikenberry (2008:3) both stress that reflection is not an easy task, it is vital to the improvement of professional and educational practices (Slabbert, 2003; Harley et al., 2000). Reflection by its nature is subjective, and although lecturers may reflect on numerous questions about their practice of

facilitating learning and assessment practice, they may not be asking the correct questions to provide objective answers that would implement valid change for the development of skills in facilitating learning and assessment.

2.7.1 REFLECTION AS RETROSPECTIVE ANALYSIS

The simplest form of reflection is retrospection and is the way that many educators reflect casually on a daily basis when they reconsider their experiences to become better educators in the future.

2.7.2 REFLECTION AS PROBLEM-SOLVING

This approach is exemplified by Dewey (1933) where critical reflection is defined as an active engagement of the mind to solve problems and improve performance in the classroom. According to King (2008:1) it is a critical analysis involving self understanding, heightened conscious and emancipatory learning. Broody (2008:500) writes that Dewey delineated the process of reflective thought which has five parts preceded by a pre-reflective level state and followed by a post-reflective period. There is no implied necessity that these steps occur linearly.

PRE-REFLECTION

Pre-reflection starts when a problem has been identified.

REFLECTION

The process of reflection includes a number of processes:

Direct action is temporarily inhibited so that thinking may take place and suggestions of what to do occur. There may be a number of options to choose from

A felt uneasiness which is transformed through identification and articulation into a cognitive problem to be solved

A working hypothesis is developed to guide data collection

A proposed solution is elaborated upon and connected with other experiences through a reasoning process

Attempts are made to verify the hypothesis through empirical testing. Further refinement of the hypothesis takes place and further testing can take place if the initial test does not verify the hypothesis

POST-REFLECTION

Post-reflection is a direct evaluation of the experience of mastery, level of satisfaction and enjoyment of a learning opportunity.

2.7.3 CRITICAL REFLECTION

Van Manen (Taggart & Wilson, 2005:3) developed three levels of reflectivity, and they serve as a benchmark for monitoring progression and growth as the lecturer's level of self efficacy enhances reflective practices:

LEVEL ONE - TECHNICAL RATIONALITY

On this lowest level of reflection, the lecturer considers only technical application of educational knowledge and basic curriculum principles for the purpose of attaining a given end. At this level the context of the students, educational institution and society are not linked to the problem (Merickel, 1998).

LEVEL TWO - CONTEXTUAL ACTION

The lecturer becomes concerned with clarifying how he/she analyses student and his/her facilitation behaviours to see if and how goals are met (Merickel, 1998).

LEVEL THREE - DIALECTICAL REFLECTION

At this level lecturers are concerned with the worth of knowledge and the social circumstances that are useful to students. Critical reflection is viewed as a non defensive stance in remaining open minded to moral and ethical considerations to educational processes (Merickel, 1998). It also involves adding depth and breadth to the meanings by asking questions about, and relating meanings to a spectrum of professional issues.

Van Manen (Taggart & Wilson, 2005:5) later added anticipatory reflection which is a further step which refers to considerations taken before the event and may even involve the planning of the event.

2.7.4 REFLECTION-IN-ACTION

Schön (1987) suggested that the capacity to reflect on action so as to engage in a process of continuous learning was one of the defining characteristics of professional practice. He also does not view education as a segregated activity to be conducted within certain hours, at a certain time of life, but rather that *education is the aim of society*, and that all learning institutions should be in a state of continual transformation. Through reflection we need to understand, guide influence and manage these transformations (Smith, 2001). Schön presents two types of reflection:

REFLECTION-ON-ACTION

This form of reflection is similar to retrospective analysis as discussed above. Schön terms as this form of reflection as reflection that involves thinking on your feet (Schön, 1987).

REFLECTION-IN-ACTION

Reflection-in-action takes place during the action of facilitating learning, when one can still change what one is doing and so change the outcome/goal of the learning opportunity. According to Schön (Boody, 2008:502), this happens when the practice situation is disorderly and not well understood, and so the problem needs to be reframed from the failed attempt at understanding. The next stage is fairly complex as the lecturer tries to produce unintended changes to give the situation new meaning. In this “to-and-fro” situation each new understanding calls for new reflection and produces a spiral pattern of work from appreciation to work to reappreciation (ibid:502).

While each of these theories on reflection is credible and useful for understanding lecturer reflection, it is my belief that they may be based on single episodes in lecturing and do not necessarily account for a long-term change in behaviour. When significant long-term changes in education need to take place, more in-depth insight needs to be gained. These insights are better gained with deep learning and constructivist theories on thinking, as well as consideration of the role of intuition within the process of reflection.

2.7.5 INTUITION AS A FORM OF REFLECTION

Schön (1987:13) speaks of reflective practitioners who are not just skilful or competent but also “thoughtful, wise and contemplative”, and whose work involves “intuition, insight and artistry”. Schön (1987:24) calls the ability to acquire new skills correctly as a feeling, which is good and can be distinguished from other feelings when a task is carried out incorrectly. He calls this skill to perform without being able to verbalise it explicitly as knowing-in-action. According to Hinett (2002:7) we draw on our intuition to do what feels right. It is an emotional response that serves to complement our knowledge and what we understand about our subject and which enables us to act in a situation. These skills were originally described by Maudsley (1979) as "the process by which learners become aware of and increasingly in control of habits of perception, inquiry, learning, and growth that they have internalized". As such they are essential to the process of reflection and working in situations of uncertainty.

2.7.6 DEEP AND SURFACE APPROACHES

Deep learning involves the critical analysis of new ideas, linking them to already known concepts and principles and leads to the understanding and long-term retention of concepts so that they can be used for problem solving in unfamiliar contexts (Houghton, 2004). Deep learning promotes understanding and application for life. In contrast, surface learning is the tacit acceptance of information and memorisation as isolated and unlinked facts. It leads to superficial retention of material for examinations and does not promote understanding or long-term retention of knowledge and information. A deep approach to learning is considered to be good and lecturers should be encouraged to adopt this particular approach to their own critical reflection. It is

important because it allows lecturers to think about *what* and *how* they facilitate learning, as well as *how* their style of lecturing impacts on what learning they facilitate. Without themselves possessing a deep understanding of specialised information that they are lecturing, lecturers will not be able to relate new knowledge to any existing knowledge that they possess (Hinett, 2002:1).

2.7.7 CONSTRUCTIVISM

Constructivism is an epistemology that argues that humans construct meaning from their current knowledge and structures within a developmentally appropriate environment (Jonassen, 1997). Constructivism is regarded as producing greater internalisation and deeper understanding than traditional learning methods (Abdal-Haqq, 1998). While it may inform and influence practice, constructivism is a theory of learning and not of lecturing (Wolffe & McMullen, 1996), and translating this theory into practice may be both difficult and imprecise (MacKinnon & Scarf-Seatter, 1997). This involves the finding of a balance between lecturing theory and the need to model constructivist methods, and this may not always lead to the appropriate thinking or learning patterns among students. Rather than being a dispenser of knowledge, the lecturer is rather seen as a guide, facilitator, and co-explorer who encourages learners to question, challenge, and formulate their own ideas, opinions, and conclusions (Abdal-Haqq, 1998).

2.8 ASSET-BASED LEARNING

Each time a person uses his or her capacity, the community is stronger and the person more powerful" (Woods, in Ebersöhn & Eloff, 2006). According to Ebersöhn and Eloff (2006), this philosophy forms the foundation of asset-based

interventions. Within this philosophy the focus is removed from the deficits or needs of an individual, to the natural capabilities, skills and resources that individual lecturers may have. By adopting an asset-based approach lecturers have to identify their own potential and identify how that potential can be directed to available interventions within their environments where they facilitate learning opportunities.

The principle that under-pins asset-based psychology is the belief that people generally strive to be happy and strive to live rewarding lives (ibid:2). Within this philosophy is the assumption that all individuals as well as their environments are endowed with multiple strengths and assets and that these assets can be identified with the help of those in the helping and teaching professions. Mobilising these assets also helps lecturers to cope sustainably in their daily lives. In using these assets lecturers are then able to internalise intrapersonal skills, rather than learning them through training. The reasons for this are:

> for people to act effectively (i.e. manifest visible intrapersonal life skills), they should know who they are, what and how they feel, what and how they think, and where they are (ibid:x).

In linking this to the Mind Dynamix Profile® lecturers become aware of their own existing intrinsic resources and that they personally do have the skills to address life's challenges and develop life's solutions. The most important of these is resilience, allowing people to adapt to stressors in order to be happy. This novel approach shifts lecturers' focus from having deficits in their style of facilitating learning to one of an asset style of self management that is both empowering and sustainable.

Asset-based psychology should also been seen in the larger context of Bronfenbrenner's ecological system (1979) within which the lecturer functions. This links to the lecturer's own micro-; meso-; exo- and macrosystem. The

microsystem relates to the lecturer's individual life in which the lecturer constructs settings and meaning. The mesosystem refers to relations between microsystems or connections between contexts. The macrosystem describes the culture within which the lecturer lives and the exosystem is defined by social setting beyond the control of the lecturer's experience. These experiences may differ between different cultures. Chronosystems involves the individual's patterning over a lifetime and their effect on the lecturer's own immediate context. Brofenbrenner (ibid) stresses that all levels of the ecosystem should be seen as constantly developing and in relation to one another. Linked to this process is the Regenesys Integrated Model that also depicts a system-based relationship in section 1.4.1 and depicts the environment of the lecturers in which this research takes place.

2.9 THE MIND DYNAMIX PROFILE® AS A TOOL FOR REFLECTION

The Mind Dynamix Profile® is the instrument of choice in the current study to determine lecturer's level of flexibility when facilitating learning. The Mind Dynamix Profile® provides an interpretation of how the lecturer perceives and processes information within the context of his ecological environment. He/she has a variety of strengths which are assets to their community, and it defines how they will function as individuals in the context of their environments. In the Regenesys Integrated Model (figure 1.2) and in Broffenbrenner's ecological system, the Mind Dynamix Profile® suggests how the lecturer fits within the context of his/her circle of influence. The sense of wellness that a lecturer has in this circle has an extended effect on the larger environment in which they facilitate learning.

2.9.1 HISTORICAL DEVELOPMENT OF THE MIND DYNAMIX PROFILE®

The Mind Dynamix Profile® is a model that is used to explain learning styles and by implication styles of facilitating learning. It is a profiling instrument that is based on a combination of profiling theories as well as additional dimensions of the brain that were not considered by other profiling instruments.

In the early 1970s Sperry described that the brain was split into two hemispheres, each with their own specialised areas of functioning (see figure 2.4). Ornstein also provided convincing evidence that the brain was specialised and each specialisation was located in different halves of the brain (Herrmann, 1996:12).

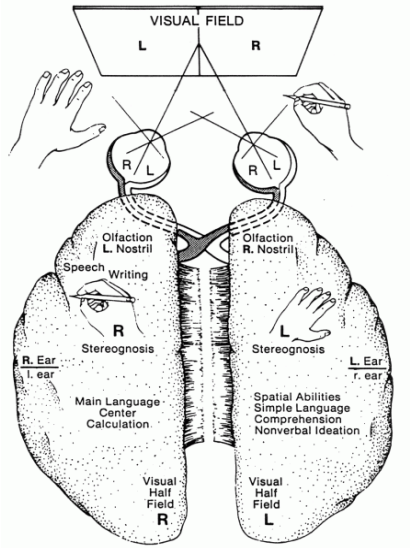


Figure 2.4 Sperry's diagram of brain specialisation (Herrmann, 1993)

Like Herrmann, De Jager has based her theory on Paul MacLean's Triune Brain Model (De Jager, 2006:15). MacLean's model identifies specialised functions of

the brain that are based on human evolution in which the brain develops sequentially: firstly as a reptilian brain, then a mammalian brain (also known as the limbic system), and it is finally capped by the neo-cortex (Herrmann, 1996:13). This is represented in figure 2.5 below.

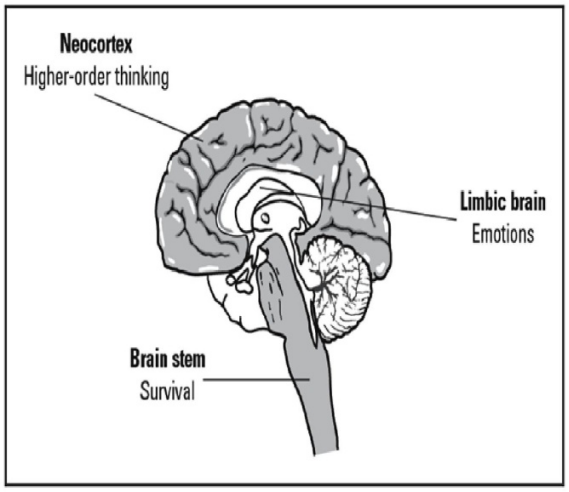


Figure 2.5 Paul Maclean's triune brain (De Jager, 2005)

In his metaphorical model Herrmann based his profile on the two brain dimensions, namely the left and right brain hemispheres and the limbic system. This resulted in a 2-dimensional profile instrument known as the Herrmann Brain Dominance Instrument (HBDI).

De Jager (2005) insisted that this model omitted vital dimensions of the individual's profile and added a third dimension to the brain profile. In the Mind Dynamix Profile this is referred to as the front/back dimensions of the brain which indicates if an individual is expressive or receptive. She also included Dennison's work (Hannaford, 1995) on Information Processing Theory that offers a metaphor for learning that like a computer, the human mind is a system that processes information through the application of rules and strategies (Gagne,

1985). The process of learning is compared to the sequence of information processing, i.e. inputting data, processing data and storing data for later retrieval (Betz, 2006:3).

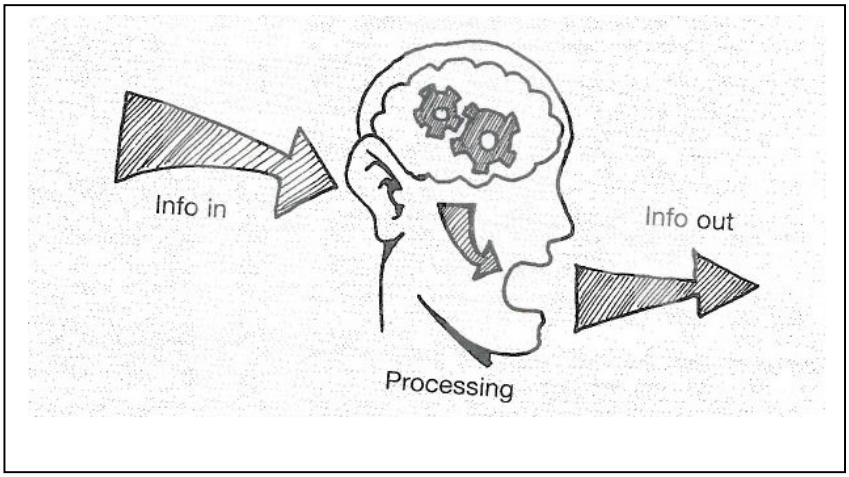


Figure 2.6 An illustration of how information is processed (De Jager, 2002)

The Mind Dynamix Profile® then represents a multifaceted model in which the lecturer gathers information through the senses, it is processed on three dimensions of the brain and output is measured through actions and communication.

Furthermore, the Mind Dynamix Profile® is based on the premise that everybody has sensory motor preferences and some of these are determined by heredity and some are due to environmental influences (Hannaford, 2005:198). The heredity profile is referred to as a lecturer's genetic profile by De Jager (2005) and as a basal profile by Hannaford (2005). The lecturer's genetic sensory motor system will determine the specific way that he/she is "pre-programmed" to take on sensory information, process the information and respond to it. According to Hannaford (2005:36):

> *what* we know, feel, learn and think is shaped by *how* we know, feel, learn and think. How we do things is in turn dependant on the sensory motor systems through which all our experiences of the world and of ourselves are mediated. These sensory motor systems shape our experience and are shaped by it.

The Mind Dynamix Profile® measures which sensory motor systems are dominant and provides useful information about preferred learning styles, and a clear understanding of a lecturer's initial response in moments of stress. Dominance has the advantage of eliciting a quick response time at a high level of functioning and at a higher skills level. Lecturers would use their dominant mode when they need to solve problems or learn something new (Lumsdaine & Lumsdaine, 1995:105).

When stressed, a lecturer relies on his/her dominant senses and ways of processing. When relaxed, the dominance profiles can fluctuate (Hannaford, 2005:199; De Jager, 2003:17). At this point the lecturer uses his/her functional profile and this ability reflects a lecturer's self-designed learning strategy that works for him/her in a particular situation (Hannaford, 2005:199). De Jager also incorporates a functional profile within the context of a Mind Dynamix Profile®. This functional profile is flexible and adaptable and shows the lecturer's dominant areas at a specific point in time, and this profile may differ from the genetic profile. Ideally the lecturer should expand his/her sensory motor system capacity beyond the genetic profile, using all fourteen variables of both eyes, both ears, both hands and both feet, as well as the whole brain. The combination of these 14 variables results in a total of a potential 128 styles of learning.

Like Herrmann (1993:63), the Mind Dynamix Profile® uses the concept of whole or integrated brain learning to describe the flexibility of thinking that needs to be cultivated in individuals for the use of all variations or the 14 variables (De Jager, 2005:17). Herrmann viewed this integration as the four-part model represented in figure 2.3. De Jager's model differs from Herrmann in that she sees integration

as being for whole brain, whole body functioning, and in this process, the lecturer may experience dramatic shifts in his/her style of facilitation. These shifts come about as a result of applying critical reflection to develop a new approach when both eyes, both ears and all parts of the brain and body as a whole move into a state of learning readiness, and should be able to access a full range of abilities in many situations. The accuracy of the action taken depends on how well the whole brain and muscles work together (De Jager, 2003:21).

There are numerous uses for the Mind Dynamix Profile® Instrument, some of which are shown in the diagram below. The area of relevance in this research which involves the lecturers has been shaded

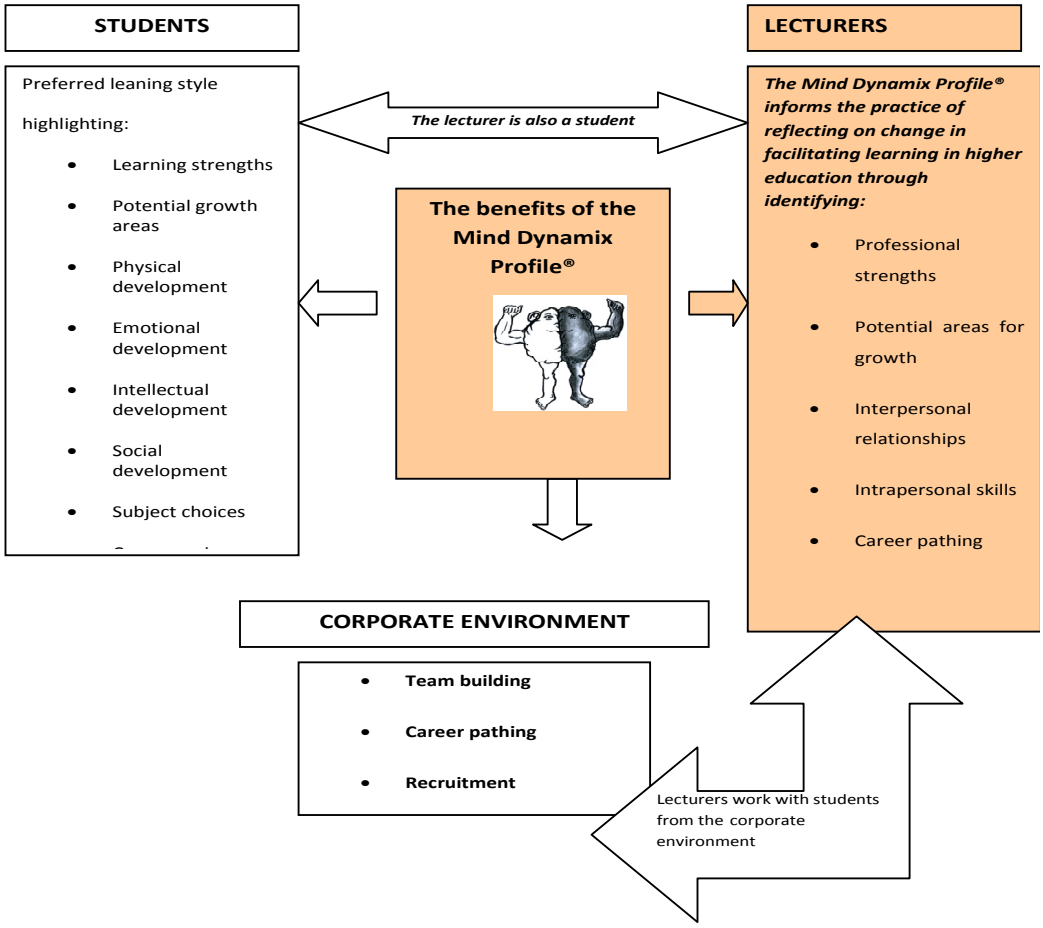


Figure 2.7 The multiple uses of the Mind Dynamix Profile®

2.9.2 USING THE MIND DYNAMIX PROFILE® MAN DATA COLLECTION SHEET FOR DETERMINING LEARNING STYLES

The Mind Dynamix Profile® has moved away from traditional question and answer style methods of gathering data, believing them to be biased and unreliable as they only reflect the conscious mind (Hawkins, 2002:18; De Jager, 2009). Instead, data for the individual dominances are collected through muscle checking. Muscle checking is a technique used by kinesiologists and health professionals to help them understand people through the body's neuromuscular responses (Hannaford, 2005:202). In this process the body's indicator muscle (in this research the deltoid muscle was used) strengthens or weakens in the presence of positive and negative emotional and intellectual stimuli (Hawkins, 2002:2).

According to Hawkins (2002:3) it takes two people to perform muscle checking, one the tester and the other the subject following this sequence:

a. The subject stands erect, the right arm relaxed by his/her side, and the left arm held parallel to the floor (either arm can be used)
b. The tester faces the subject and places their left hand on the subject's shoulder to steady him/her. Then the tester places their right hand on the subjects extended left arm just above the wrist
c. The tester tells the subject to resist when the tester pushes down on his/her arm
d. The tester should push down fairly quickly, firmly and evenly

Assuming that there is no physical problem with the muscle and the subject is in a normal, relaxed state of mind, the muscle will "test strong" and the arm will remain locked. If the test is repeated in the presence of a negative stimulus, the

muscle will not be able to resist the pressure and the subject's arm will fall. The following photograph illustrates this process.

Figure 2.8 A demonstration of the muscle checking method used to gather data for the Mind Dynamix Profile®

By bringing the subject's attention to each arm, each leg, each eye, each ear and each hemisphere of the brain through muscle checking (Hannaford, 1997:155), the Mind Dynamix Profile® instrument identifies a profile based on dominances between the left and right sides of the body. These dominances are recorded on a Mind Dynamix Profile Man (figure 2.9) and visually represent the interrelationship between the dominances. Note that the diagram is orientated as though the viewer were looking directly into it as if it were a mirror.

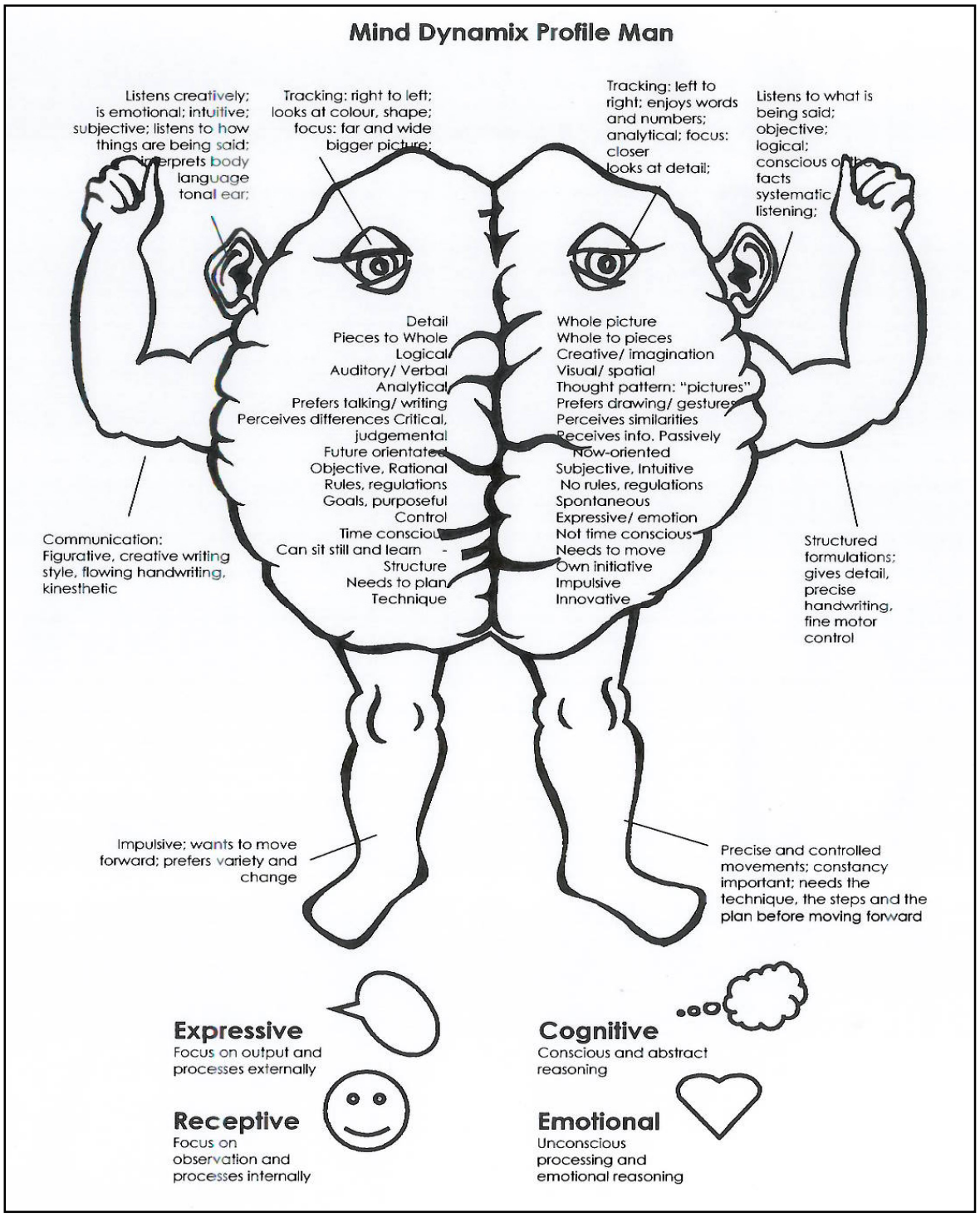
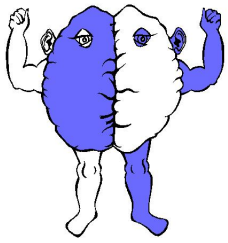
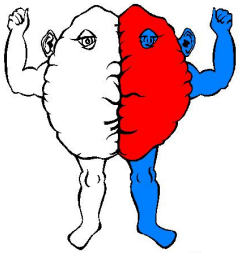
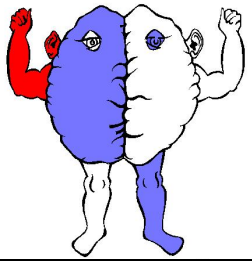


Figure 2.9 The Mind Dynamix Profile® Man data collection sheet (De Jager, 2005)

Typically the profiles fall into three categories (De Jager, 2006:46) as illustrated in the table below.

Table 2.4 The three categories of the Mind Dynamix Profile®

FREE FLOW OF INFORMATION	BLOCKED INFORMATION FLOW	MIXED INFORMATION FLOW
		
The dominant brain hemisphere is on one side and the dominant eye, ear, hand and foot is on the opposite side of the body. Information input, processing and output is compatible and information can flow freely between the senses, brain and motor areas.	The dominant brain hemisphere and all sensory-motor channels are on the same side. The logical brain controls the sensory input and motor output, while processing occurs in the creative right brain hemisphere, resulting in incompatability between the brain and the sensory motor system.	Part of the sensory-motor system is on the same side as the dominant brain hemisphere and the rest is on the opposite side. Information between the eye and foot is free flowing and compatible with the dominant hemisphere, while incompatibility exists between the brain, ear and hand.

Any potential barriers in the flow of information could result in information being rendered useless to the stressed lecturer because it is blocked from being utilised (Hannaford, 2005:200). According to De Jager's model (2006:46), for the effective flow of information to take place, the lecturer needs to receive sensory data via the back/receptive part of the brain, and then he/she filters it through the bottom/emotional brain to determine whether he/she is interested or motivated enough to use the information. From there the flow of information needs to move to the top/cognitive area of the brain to see the holistic picture, while filling in the details and activating the necessary vocabulary, before moving to the emotional area for validation that he/she knows it. Information then moves to the motor area or front part of the brain for application and expression. The quality of the

information that is produced by the output phase will be determined by the feedback that the lecturer receives.

2.9.3 THE VALIDITY OF THE MIND DYNAMIX PROFILE®

The validity of the Mind Dynamix Profile is assumed *inter alia* in the fact that the instrument has been used for a period of 10 years. Over and over again people remark on how it reflects their behaviour so well and that for the first time they have gained insight into their own behaviour patterns. It has been successfully used in the school and corporate environment for understanding learning styles as well as management styles, recruitment processes and team building with enormous success (Hannaford, 2005:208; De Jager, 2009a). Feedback from clients who have had their profiles measured reflects evidence of this and they feel empowered by the knowledge gained from this information (Swanepoel, 2006; Price, 2005). This study will be the first documented research that uses the instrument for professional development of lecturers in higher education.

Underpinning the Mind Dynamix Profile is the physiological evidence that an individual under stress who undergoes a PET (Positron Emission Tomography) Scan or EEG (Electro-encephalogram) will show decreased blood flow across the whole neo-cortex, especially on the non-dominant hemisphere of the brain (Hannaford, 2005:198) indicating that the dominant hemisphere then functions more efficiently. According to Hannaford (2005:198):

> This homolateral pattern may allow the dominant hemisphere to more efficiently direct the survival reaction without having to consult with the other hemisphere across the corpus callosum. Under stress the brain also exhibits a fast Beta brain wave pattern that facilitates reaction and movement, while alpha and theta waves for thinking and learning decrease.

As a result when lecturers meet situations that place them in stress, they may react by reverting to their genetic or basal profile, accessing only one brain hemisphere, and they have access to only those sensory and motor dominances that feed into or are expressed through that dominant hemisphere.

2.9.4 THE PHYSIOLOGICAL BASIS FOR THE MIND DYNAMIX PROFILE®

The Mind Dynamix Profile® model claims reliability on physiological grounds in terms of the variables that represent the input, processing and output phases of the learning process (De Jager, 2005:26).

THE PHYSIOLOGY OF INFORMATION PROCESSING

The information processing phase is not presented first in the Mind Dynamix Profile® but knowledge of this phase helps the reader to better understand the other two phases of the Mind Dynamix Profile®. The processing phase is divided into six variables and functional areas. Central to understanding these variables are the various participatory midlines (Dennison, 1981:4). These are the midlines that divide:

the front and back hemispheres of the brain
the top and bottom hemispheres of the brain
the left and right hemispheres of the brain

The *front and back* hemispheres of the brain refer to the parts of the brain that are in front of or behind the participatory midline. These areas are typified by

sensory motor responses and reflexive behaviour without thought or emotion (De Jager, 2005:29; Jensen, 1995:26).

Table 2.5 The physiology of the back and front parts of the brain

PORTION OF THE BRAIN	RECOGNISABLE BEHAVIOUR	PARTS OF THE REPTILIAN BRAIN
Front part of the brain	The lecturer's focus is on action and expression of information, as well as on producing motor output.	*Cerebellum:* Essential for coordination of movement and reflexes *Pons:* Involves the respiratory centre of the brain; cranial nerves; muscles of the ye and facial muscles for motor and sensory expression *Medulla Oblongata:* This allows for cross lateral movement; nerves dealing with blood vessel contraction, and is associated with cough, gag, swallow and vomit reflexes.
Back part of the brain	This refers to the receptive or sensory inputs of the brain which would make the lecturer more passive and observant.	

The *top and bottom* brain refer to the cognitive or rational part of the brain, otherwise known as the neo-cortex, and the bottom part of the brain known as the limbic system. When integrated, the function of the top and bottom part of the brain is to pause between input and output. When pausing, the information is rationally appraised and emotionally validated. This step greatly impacts on learning, memory and motivation (Promislow, 2005; De Jager, 2005:31).

Table 2.6 The physiology of the top and bottom parts of the brain

PORTION OF THE BRAIN	RECOGNISABLE BEHAVIOUR	PARTS OF THE LIMBIC SYSTEM
Top part of the brain	In this area information is processed consciously and with the capability of abstract reasoning	*Amygdala:* Sensory and cognitive processing, coordinates body reactions to produce appropriate responses *Hippocampus:* Nerve connections in the hippocampus house the short-term and long-term memories
Bottom part of the brain	In this area information is processed emotionally to make links between memory and learning	

		Thalamus: The relay station between sensory input and motor output. It interprets pain, temperature, touch and has a function in emotions and memory *Hypothalamus:* Controls pituitary gland, food intake, thirst, body clock, rage, pain and pleasure. It is central to the direction of motivated behaviours *Basal ganglia:* Controls fine-motor and gross-motor movements, coordinates thought and helps plan future behaviours

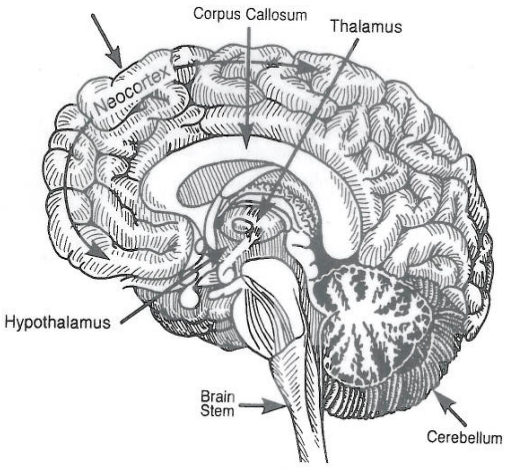


Figure 2.10 The physiology of the limbic area of the brain (Jensen, 1995:13)

The *left and right* parts of the brain refer to the two hemispheres of the top section of the brain called the neo-cortex. The left and right hemispheres refer to the rational or thinking part of the brain. The functions of these areas are to be able to focus on the bigger picture of concepts, whilst also being aware of all the necessary details (De Jager, 2005:31).

THE PHYSIOLOGY OF THE INPUT PHASE

The input phase is the phase of gathering sensory information from the environment. In Figure 2.4 this is demonstrated by the “info in” phase. There are four variables that influence the physiology of receiving input prior to the interpretation of information by the brain, namely the left and right eye, and the left and right ear. According to De Jager (2005:33) when looking at input, the lecturers use the primary senses of the eye and ear because everything in the environment is made up of light and sound waves. However, it is important to note that they would actually use all of their senses to perceive their environments.

In the physiology of the eye the light enters the eye through the transparent conjunctiva, making its way through lenses and nerves, ultimately reaching the visual area of the cerebral cortex, called the occipital lobe. Within the anatomy of the brain these nerve pathways are crossed so that information from the right eye feeds information to the left brain hemisphere and the left eye feeds information to the right brain hemisphere. According to De Jager (2005:34) the occipital lobe interprets visual information determines the characteristics with which the eye will see. This underpins the reason why in the Mind Dynamix Profile® the left eye dominant person sees with the characteristics of the right brain and vice versa.

Similarly, in the physiology of the ear sound waves are collected by the pinna and ultimately the sound impulses are conducted along the auditory nerve and then to the auditory area of the cerebrum. De Jager (2005:37) interprets this to mean that the temporal lobe that interprets data determines the characteristics with which the ear will hear. This is why the left ear dominant person hear with the characteristics of the right brain and vice versa.

THE PHYSIOLOGY OF THE OUTPUT PHASE

There are four variables that influence the physiology of information output. They are the left and right hands and the left and right feet. In figure 2.4 this is called the “info out” phase. The hands and the feet have physiological links to the areas of the brain controlling communication and decision making respectively, and so the Mind Dynamix Profile® uses them as a benchmark of how the lecturer responds to the information that he/she may receive (De Jager, 2005:37).

PET scans of the brain show that when a person is speaking there is increased activity in the areas of the motor and sensory cortex of the neo-cortex, which are associated with hand movements (Hannaford, 1997:28). The hands give an indication of how lecturers express learned knowledge through verbal, non-verbal and written communication (De Jager, 2005:38). She says that four main areas of the brain are involved in the task of speech and writing:

Broca’s area	-	vocalisation; movement of tongue, lips and larynx in speech
Wernicke’s area	-	understanding language
Tertiary speech area	-	on the medial aspect of the cortex
Exner centre for writing	-	movement of the hands and fingers

The neo-cortex forms the highest centre of control and execution of planned voluntary and learned movement. The voluntary cortical control system is a complicated, integrated neural network, which includes several cortical areas. According to De Jager (2005:39), three phases of control of movement are distinguished:

The *idea of movement* is generated within the association of the parietal lobes

The *decision of movement* is transferred to the frontal lobes

The programmed activation of the primary motors areas dispatch the command for movement

2.9.5 THE RELIABILITY OF THE MIND DYNAMIX PROFILE®

The measure of the reliability of the Mind Dynamix Profile® is demonstrated by experience which has shown that regardless of which Mind Dynamix Profile® consultant identifies the profile; an individual's basal or genetic profile will produce the same pattern, and that pattern will remain consistent over time (Hannaford, 1997:47). Changes in professional behaviour can therefore only be made through a conscious process of reflection and adaptation by the lecturers themselves.

CHAPTER 3

THE RESEARCH CONTEXT, DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the context, methods and practices of collecting the necessary data for this research study. It is important to be mindful of the main research question that this study proposes to answer, namely:

> *To what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education?*

By using an action research methodology, my own research generates a theory of my own perceptions and understanding of managing the process of facilitating learning. This is the theory which I live and lecture by, and it is represented through an account of integrating this theory into my own practice of facilitating learning and managing lecturers who are in need of their own professional development.

3.2 RESEARCH CONTEXT

Permission to conduct this research study was obtained at a Private Institution of Higher Education. The institution employs in excess of 80 staff members. Its main function is to present educational material on leadership and business

management to both the public and private sector. Lecturers are pivotal to the structure of the organisation as they provide the tuition to the learners by facilitating learning processes. Other staff members include:

- a sales team who sells academic courses to the public
- a research team who designs and develops academic course material
- an accreditation team who are tasked with gaining accreditation for academic courses from various Sector Education and Training Authorities (SETAs)
- academic administration staff who distribute assignments to lecturers, organise venue logistics and load students' details, when they fulfil the necessary criteria, onto the South African Qualifications Authority (SAQA) data bases

All of the lecturers are assumed to be competent learning mediators who facilitate learning, as well as being curriculum developers, assessors and researchers because they were employed to fulfil these roles by the employer. As a result of understaffing, these lecturers frequently function in a highly stressful environment. They normally facilitate learning in the classroom for a minimum of three days a week, but often five days a week, for approximately eight hours a day. Over and above this they are expected to mark assignments, design learning opportunities and travel to areas throughout South Africa, resulting in them being away from home and families for extended periods of time. Although they are experts in their particular field of study, they are frequently expected to present academic courses on material that they may not be familiar with because of the demand of the clients.

The Private Institution of Higher Education depends on clients for fees and receives no external funding from government or any other organisation. Income is generated by the number of sales that are made. In brief, the more students

that occupy classroom seats, the more income that is generated for the institution. This has resulted in the role of learning mediator for lecturers having become a primary function to the institution, and the roles of curriculum developers, assessors and researchers being secondary functions. Key performance assessments however expect both the primary and secondary roles to be fulfilled competently.

The rationale behind this research was based on my role as a lecturer being expanded to include academic management and I became responsible for the performance of the group of lecturers and their professional development. I interpreted this task as finding methods to ensure that lecturers could become more skilled at facilitating learning. The methodology that I selected was the one that I felt had the most profound effect on my own professional development, namely the reflection on my own lecturing practice which was informed by the Mind Dynamix Profile®.

I investigated and interrogated whether the Mind Dynamix Profile® could be used as an instrument to understand both the areas of strength and areas of development for lecturers. In so doing the lecturer would be able to benchmark which skills he/she is able to rely on in the practice of facilitating learning and which areas he/she should focus on as areas of development. In so doing the lecturer could potentially become “adept at his craft”, and practice self-mastery in his or her role as a lecturer. This process was done through reflection-in-action and reflection-on-action in the practice of facilitating learning. It also relied on other reflective practices such as deep learning; constructivism and intuition.

3.3 ONTOLOGY

According to McNiff and Whitehead (2006:23) ontology is *the study of being* and this ontology influences how we view our relationships with others. This research

study involved the Mind Dynamix Profile® as a reflective instrument to provide a baseline for professional development. I, as the researcher, also played an important part in helping the lecturers interpret their profiles and this by its nature was value laden because it was influenced by my own personal values, worldview and Mind Dynamix Profile®. As the researcher, I also felt morally committed to expose the lecturers to methods that could enhance their style of facilitating learning so that they could potentially become "adept at their craft", thus having enriched the learning experience for themselves as well as the students within the learning environment. It also needs to be borne in mind that even though lecturers may have been exposed to the Mind Dynamix Profile® the decision to implement it as an instrument for reflection was their own choice. As the researcher I also had to constantly implement a vast variety of reflective skills for myself in the analysis and understanding of these processes.

3.4 EPISTEMOLOGY

Epistemology is *how we understand knowledge* and how we come to acquire knowledge (McNiff & Whitehead, 2006:26). This knowledge according to Schön (1987) is derived from the construction and reconstruction of professional experience, and is in contrast to applying technical and scientific rationality Central to my research was the fact that I wished to gain an understanding the extent to which the Mind Dynamix Profile® was a useful instrument for informing the practice of facilitating learning in higher education practices. With the responsibility of implementing this research lay accountability for both my thoughts and behaviour within this research project.

My own personal paradigm is the perception that knowledge is a relative construct that is largely interpreted by one's own Mind Dynamix Profile® and it is only through a process of reflection that an individual is able to change his/her

paradigms. I believe the same paradigm was also applicable for the lecturers in this study. This Postmodern perspective makes it difficult to define reality, as it is in a state of flux and in a constant process of becoming (McNiff, 2000:43).

Questions may still arise as to the validity of the learning styles influencing behaviour. Coffield, Mosely, Hall and Ecclestone (2004) contend that learning style instruments are widely used but not enough is known about their reliability and validity and their impact on pedagogy in post-16 learning. In my own paradigm is the belief that the knowledge of learning styles and its relationship to the practice of facilitating learning has been through an extensive evolutionary process. This relationship is now at the point where it now accepted as being a relevant issue for consideration for lecturers who facilitate learning (Zhang, 2001; Rochford & Mangino, 2006).

3.5 OTHER INFLUENCING PERSPECTIVES

Throughout my lecturing career I have been identified as having exceptional skills in facilitating learning. To this extent I have frequently been invited to lecture in a variety of positions. I considered myself to be “adept and my craft”, but I was constantly burdened with the question as to what part of my development made me a craftsman as recognised by my peers. Having explored the Mind Dynamix Profile® extensively as an instrument to benchmark my style of learning, I began to reflect almost obsessively on any patterns or relationships that may exist between my profile and my own skills in facilitating learning. Fundamental to this viewpoint is that I cannot reflect and improve my own behaviour if I have no measure for my behaviour and what it looks like. This starting point was the Mind Dynamix Profile®. Intuitively this process made sense to me.

In this research context I drew from the view of Schön (as in McNiff, 2000:43) in which he states that it is time to move from the moral high ground of research:

> where theorists develop abstract theories in sanitized conditions, and the swampy lowlands, where people negotiate the everyday muddle of life, working things out for themselves and developing their own practical theories of work. It is important, says Schön, that we get our feet wet and embody the theory in our practice as much as locate it in the head.

3.6 THE RESEARCH PARADIGM

Reflective practice is important to the professional development of lecturers so that they can learn from their experiences of lecturing and facilitating student learning (Brockbank & McGill, 1998:152). Developing sound reflective practices means developing ways of reviewing strategies of facilitating learning so that they become processes which may continuously develop to a point of self-mastery and excellence.

A key factor of this research that has been mentioned earlier is the importance of reflective competence by lecturers in the process of facilitating learning. The lecturer needs to take responsibility for creating the environment in which he/she can reflect critically upon the material before him/her, and also reflect critically on the process by which he/she facilitates learning. The facilitation of learning should be intentional in the sense that the lecturer is conscious of what he/she is doing and why he/she is doing it (Brockbank & McGill, 1998:152). Dewey comments on reflection as a required ingredient for this success (1916:154) and he states that:

> it is a matter of indifference by what psychological means the subject matter for reflection is provided, observation, memory, reading, communication are all avenues for supplying data.

Schön (1987) says that reflection is always bound with action, and he suggests that professionals should learn to frame and reframe the complex and ambiguous problems they are facing, test out various interpretations, and then modify their actions as a result. Reflection needs to be viewed as both reflection-in-action as well as reflection-on-action, or else viewed hierarchically according to Van Manen's three levels of reflection.

3.6.1 REFLECTION-IN-ACTION

According to Schön (1987) reflection-in-action is a stage of professional competence where the lecturer is able to think consciously about what is taking place and is able to modify his/her actions instantaneously if necessary.

In writing about reflection-in-action, Hatton and Smith (1995) say that an element of knowing-in-action occurs while an action is being undertaken. It is therefore seen to be one means for distinguishing professional from non-professional practice (Feiman-Nemser, 1990; Schön, 1983, 1987). It may be characterised as part of the artistry or intuitive knowledge derived from professional experience Gilson (Hatton & Smith, 1995) and includes engaging in a reflective conversation with oneself, shaping the situation in terms of the reflector's frame of reference, while consistently leaving open the possibility of reframing by employing techniques of holistic appraisal Altrichter and Posch (ibid, 1995).

3.6.2 REFLECTION-ON-ACTION

Most reflection involves looking back upon action some time after it has taken place. Van Manen (Taggart & Wilson, 2005:3) terms this form of reflection as

'technical reflection' and it appears to be based on thinking about skills or competencies with a view to evaluating their effectiveness almost immediately after an attempt at implementation, and then making the necessary changes to behaviour (Hatton & Smith, 1995). Smith and Lovat (1991:57) state that some models of reflection are based on encouraging deliberation over a relatively extended time about the purposes of action with a view to exploring alternatives which might be implemented in the future (ibid:213). Others in turn argue that reflection involves conscious detachment from an activity followed by a distinct period of contemplation (Hatton & Smith, 1995).

The Mind Dynamix Profile® provides an objective measure of the lecturer's learning style that informs his/her method of facilitating learning. With this tool the lecturer is able to reflect either in action or on action to assess his/her areas of strength as well as areas that may need further development when facilitating learning. By adapting areas of development the lecturer adopts a position of self-mastery in an attempt to become "adept at his/her craft".

Self-mastery is defined as the ability to ascend or have victory in a struggle or competition (Robbins, 2009). According to Robbins (2009) self-mastery does not happen by accident. It is the process that occurs as people interact effectively with the events and circumstances of their lives. As a result they grow in self-understanding; self-confidence, personal effectiveness and the ability to handle challenges of the workplace. Within the parameters of the Mind Dynamix Profile® self-mastery could be viewed as using the whole body and brain in performing a task and having enough flexibility to integrate all fourteen profile variables (section 2.8.1) in such a way that the lecturer is able to perform at his or her optimum level according to the circumstances that are presented, even when under stress. In the whole brain state, any new experience is approached with both eyes, both ears, all parts of the brain and the body as a whole (De Jager, 2005).

Self-mastery within the parameters of this research study includes the lecturer taking responsibility for:

A paradigm of success as measured by what happens *within* the lecturer rather than what happens to him or her

Exercising responsibility for self-mastery by identifying how a quality of life comes from the choices that he or she makes

Learning how to conquer and transcend the challenges of life by changing his/her thinking; feelings and behaviour

Valuing himself or herself as an individual

The lecturer making a decision to care for himself or herself by identifying and managing his/her areas of development, as well as building on his/her strengths

Becoming a master at the craft of facilitating learning

3.7 THE RESEARCH MODEL

The ontology that frames this research is also underpinned by a number of assumptions, namely that

Action research is value laden (McNiff & Whitehead, 2006:23). This means that I as the researcher had to articulate values central to my paradigm, and then reflect whether I was true to those values throughout the research process.

Action research is morally committed (McNiff & Whitehead, 2006:24). Although I as the researcher could choose the values that I subscribed to, I also had to be held morally accountable for the choices that I made. This

accountability could however not be necessarily be extended to the other research subjects.

Action researchers perceive themselves to be in relation with one another within in their specific social contexts (McNiff & Whitehead, 2006:24). A core idea behind this perception was that I as the researcher may have been able to transform my own and other lecturers' paradigms, but I also needed to incorporate these ideas and insights of others involved in the research project.

The research model is based on action research because it was practitioner based and involved extensive self-reflection (McNiff, 2002:1). It specifically used a participatory style of action research which required continual reflective participation from me in the role of insider researcher, as well as the lecturers (research subjects). Each reflective process in the action research process aimed to contribute to the success of the research intervention, in the hope that it would meet the criteria of participants' transformed research competence (Zuber-Skerritt, 2001: 16). The figure below shows the steps within each action research cycle.

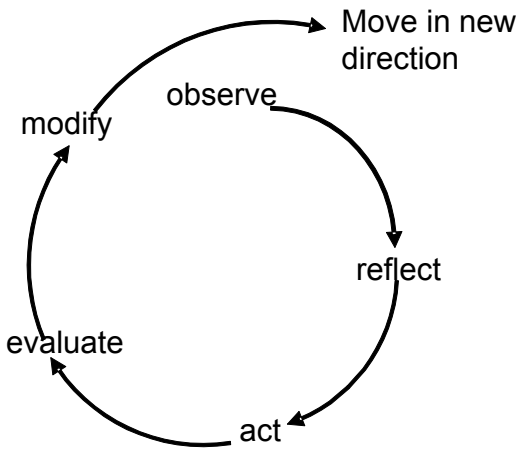


Figure 3.1: An action research cycle (Adapted from Mcniff & Whitehead (2006))

In action research the cycle continually repeats itself, ultimately creating a spiral of change and adaptation. These cycles are continuous and intertwined between my own and the lecturers' experiences of the research process. This may pose an interesting paradigm in this research study because the observations that gain priority may be based on the researcher's profile (epistemology) and this could influence the priorities that would be identified and stressed by the research results.

By adopting the structure of an action research cycle reflective various phases were anticipated.

3.7.1 THE OBSERVATION PHASE

In this phase I as the researcher and the lecturers hoped to observe their own current practice. Through a study of their process of facilitating learning in the classroom the lecturers could become aware of certain ways of facilitating learning and processes that they habitually performed. Part of this observation could include identifying areas of strength as well as areas of development in the process of facilitating learning.

3.7.2 REFLECTION PHASE

In the following phase it was anticipated that lecturers would reflect on the validity of their own Mind Dynamix Profile®. This could include an analysis and judgment about the learning opportunities that were offered by themselves to their students and could either have been during or after the learning opportunity, involving the process of refection-in-action and reflection-on-action. The lectures could identify any aspects of their practice that they wanted to adapt or change. Superficially,

much of this process may have been intuitive and this could have left the lecturer with a feeling of the process having gone well or badly. By using the Mind Dynamix Profile® the lecturer would be expected to view his/her lecturing strengths and areas of development with the view of adapting them to the point where the lecturer became “adept at his/her craft” and reached a high level of excellence.

3.7.3 PHASE OF ACTION

During this phase I would encourage the lecturers to imagine alternative methods for the process of facilitating learning, and to experiment with new ideas within their own professional environment. It was anticipated that the lecturers would develop and apply new strategies for facilitating learning that would bring about improvement on previous practices. Through reflection on the Mind Dynamix Profile® and by comparison between past lecturing strategies and the profile, the lecturers too would hopefully come to new conclusions about their professional practice and would implement new strategies in their professional practice.

3.7.4 EVALUATION OF STRATEGY

This was the phase of evaluation for myself on my practice as well as the lecturers of what happened when the new strategy were implemented. The new strategy would have to be evaluated through a process of reflection-on-action.

3.7.5 MODIFICATION OF STRATEGY

As a result of the evaluation, it was anticipated that their strategies may be further modified and refined to make the lecturers “adept at their craft”. In this phase lecturers could monitor and evaluate their new strategies through discussion with others or reflection, thus continuing on a new reflective cycle, hopefully spiralling in ever modified behaviours.

These cycles could be continued even after a lecturer reached a point where he/she was considered as having reached a point of excellence by his/her peers.

3.8 SELECTING THE SAMPLE

A sample of research subjects were selected from a group of volunteers who showed an interest and were prepared to spend time in this action learning process.

As the researcher I formed part of the sample and fulfilled two different roles. Firstly I regularly reflected on the role of the Mind Dynamix Profile® on my own practice of facilitating learning. Secondly as the researcher it was important to continually reflect on my own bias that occurred because of my own personal Mind Dynamix Profile®. I worked within the same environment as the lecturers partaking in the research and could be available to help them with adapting their style in areas of development and to celebrate their strengths and new changes that worked well. It was anticipated that this would occur on a regular basis.

3.9 THE RESEARCH SEQUENCE

The research proposed the use of a variety of research methodologies using the following sequence.

3.9.1 AN INFORMATION WORKSHOP

After permission was gained from both the Research Ethics Committee of the Faculty of Education at the University of Pretoria and the Private Institution of Higher Education to conduct this research, I arranged an information workshop for academic and management staff. At the workshop I explained the goal of the research and explained the concept of the Mind Dynamix Profile® which reflects 128 potential styles of learning. A sample of potential subjects was to be selected from people who showed an interest in being part of the research process and who also met the criteria of being lecturers who facilitate learning processes for the institution. All staff that held other positions were excluded from this study.

Each lecturer was required to grant me consent to be part of the research study and signed the necessary consent forms. It is an ethical requirement in which research participants voluntarily participate in the research and also know that they have the right to withdraw from the research at any time without any consequence. Their right to remain anonymous has also been upheld, and they will be merely referred to as RS 01; RS 02 and so on throughout the study. The final sample of nine research participants was formed from those who ultimately signed the consent forms and myself who was the object of the enquiry.

3.9.2 IDENTIFYING THE MIND DYNAMIX PROFILE®

Each lecturer's specific profile was identified by an independent Mind Dynamix Profile® consultant. This was done to reduce the influence of researcher bias within this study. The consultant was unknown to the lecturers in order to increase the level of credibility of the Mind Dynamix Profile® results. A scribe, who was also unknown to both the researcher and the lecturers, was brought in by the consultant to aid in writing down necessary observations.

A sixty minute appointment was scheduled for each research candidate to identify their Mind Dynamix Profile®. The consultant as well as the scribe was present within the process. The scribe wrote a summary of the consultant's discussion with the lecturers. This process was recorded either on video or audio tape as well. After each lecturer's specific profile was identified by the independent Mind Dynamix Profile® consultant, the profile was interpreted in relation to the lecturer's style of facilitating learning, highlighting both its strengths and areas of development. The areas of dominant specialisation were recorded on a Mind Dynamix Profile Man (figure 2.9).

To avoid any bias, I was not involved with either the identification of the profile or with the interpretation of the profile with the lecturers.

3.9.3 PROVIDING FEEDBACK TO LECTURERS

The lecturer's Mind Dynamix Profile® was compared with a profile that Hugo (2005:1) refers to as qualities which makes lecturers "adept at their craft". According to Hugo (2005) this implies that [lecturers] know *what* they were [lecturing]; why they were doing it, *how* to go about it and *how* to lucidly express themselves. These qualities are based on the characteristics of time, space, self,

perception, thought and intentionality (Hugo, 2005:1). Within the Mind Dynamix Profile® these are reviewed as input, processing and output dominances. Both Hugo (2005) and De Jager (2003) emphasise a balance of *all* characteristics to be used flexibly by a lecturer to display "something extra" referred to by the department of education policy *Norms and Standards for Educators* (2000) Herrmann referred to the same concept as whole brain learning in the context of The Herrmann Brain Profile (1993). The optimum state of a Mind Dynamix Profile® is also referred to as whole brain functioning (De Jager, 2005:17) in which the lecturer would use all 14 variables of the profile.

As the researcher I presented the Mind Dynamix Profile® in the form of a table displaying each lecturer's strength and areas of development of their individual Mind Dynamix Profile®. The areas of development were perceived to be those areas that were out of balance because they could not be used flexibly by the lecturer. Each lecturer was provided with the notes as written by the scribe, access to the video or audio recording of their profile as well as a written table of their strengths and areas of development for facilitating learning. The following table outlines the criteria by which the summary of the profile developed.

Table 3.1 Table displaying each lecturer's strength and areas of development.

AREAS OF STRENGTH	AREAS OF DEVELOPMENT
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information	
Either the right or left eye will be dominant. This interprets the visual information that the facilitator receives as an input process, depending on whether the left or right eye is dominant.	
Listening skills	
Either the right or left ear will be dominant. This interprets the auditory information that the facilitator receives as an input process, depending on whether the left or right ear is dominant.	
Body language	
According to the Mind Dynamix Profile® some people are introvert and others are extrovert and this will have an effect on their interaction with learners in the classroom. This information is drawn from whether the lecturer is receptive or expressive.	
Structure of the learning opportunity	
The structure of the learning opportunity will be interpreted from information provided by the Mind Dynamix Profile® indicating if the lecturer is right or left brain hemisphere dominant. It also relates to whether the lecturer shows cognitive or emotional; expressive or receptive dominances. This information is also drawn from viewing the entire profile and interpreting the flow of links or blocked areas between the input, process and output processes.	
Teaching administration	
Teaching administration is dealt with in a variety of ways by lecturers. This information is interpreted from the amount of logic and detail the lecturers profile holds as well as their eye dominance.	
Information Processing	
Refers to the processing of information on three levels, namely left/right; top/bottom and front/ back. This indicates the dominant portion of the brain that is then used the most frequently.	
Additional information	
This generally refers to the expected behaviour that the lecturer may experience in times of extreme stress when facilitating learning.	

3.9.4 INTERPRETING THE PROFILE

De Jager (2008) assisted in the development of tables with the implications of the various profile dominances within the Mind Dynamix Profile® to lecturers. The information is collated from characteristics presented by the physiological dominances as described in section 2.8.5 in chapter 2. In the tables below, it can be noted how dominant characteristics, be they logic or gestalt, could be interpreted. Further interpretation of the style of facilitating learning involved an interpretation of the combination of a variety of dominances.

Table 3.2 The expected style of facilitating learning when considering various dominances and the interpretation of data according to the Mind Dynamix Profile® (adapted from De Jager, 2008)

PHASE 1: INPUT OR GATHERING OF INFORMATION	
 EYE DOMINANCE	
GESTALT EYE (LEFT)	**LOGIC EYE (RIGHT)**
Scope of learning opportunity	
This lecturer sees the bigger picture/ expected outcome of the facilitation intervention.	This lecturer would normally use a situational analysis to determine the needs of the students.
The detail of facilitating the achievement of the expected outcome is not important and does not form the focus of teaching.	Attention would be paid to detail of achieving the expected outcomes using step-by-step implementation.
This lecturer would tend to be a visionary and see things how they can be.	This lecturer tends to be more academic and sees things the way they actually are.
Work presentation	
Use tables and bullet points	May write text rich notes
Visual presentations make use of colour	Notes presented in black or blue
Makes use of charts	Lots of use of whiteboards and flip charts

Pictures/diagrams in presentation	Uses written explanations
Allows for freedom of expression	Focus on neatness of layout with uniform fonts, text
Draws lines freehand	Uses a ruler
Work "messy"	Structure and order in work
Preferred style of presentation	
Uses few words supported by visual material.	Very verbal presentations.
Provides students with the freedom to use their own interpretation of information.	Provides a lot of detail to be sure that students "get it all".
Focuses on student involvement in lectures.	Needs to be "in control".
Has a dynamic structure to facilitating.	Sense of orderliness in the classroom.
Presents information in a radiant style.	Linear and sequential presentation of information.
Abstract style of presentation.	Looks for logic throughout presentation.
Prefers to use keywords and flexible style.	Uses a taxonomy such as Blooms taxonomy to assure comprehensiveness of information.
Referencing is not a priority.	Has a strong referencing skill.
May be distracted from topic.	Very focused on topic.
Pays attention to the emotional aspects of presentation.	Pays attention to relevance and facts of presentation.
Classroom layout	
Makes provision for movement of furniture around the room.	Uniform and structured alignment of desks.
Allows for freedom of expression in presentation of notes.	Notes presented uniformly.
Looks at student potential and what they CAN become.	Views students critically and analytically and focuses on what IS.

 EAR DOMINANCE	
GESTALT EAR (LEFT)	**LOGIC EYE (RIGHT)**
Style of listening	
Displays subjective hearing.	Objective hearing by listening to facts.
May generalise information, leading to assumptions being made.	Listens for the linear sequence of information.
Listens to *HOW* things are said rather than WHAT is said.	Listens to *WHAT* is said rather than *HOW* it is said
Listens empathically	Listens critically and analytically
Focuses on understanding the information rather than memorising the facts.	Is good at semantics and syntax.
May need to have information repeated for accuracy.	Listens to detail and facts of information.

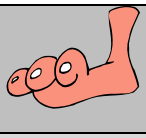
 PHASE 2: PROCESSING OF INFORMATION WITHIN THE BRAIN	
LEFT AND RIGHT BRAIN HEMISPHERES	
GESTALT (RIGHT) BRAIN	**LOGIC (LEFT) BRAIN**
Conceptualising information	
Processes information from holistic concepts and then analyses them.	Processes information pieces to conceptualise holistic ideas.
Thought processes are emotionally driven.	Thought processes are language driven.
Uses applications, expressive arts for presentation.	Likes to see letters, printing and spelling.
Comprehends the application of numbers.	Comprehends numbers well.
Uses many estimates of information.	Looks for exact information.
Simultaneous and radiant thinking.	Sequential thinking.
Likes leaving events open ended.	Like closure on events.
Piles papers and notes.	Uses a filing system for materials.

Style of facilitating learning	
Focuses on language comprehension, images, emotion and meaning of text.	Focuses on language correctness – semantics and syntax important in text.
Spontaneous in presentation of lectures.	Planning of lectures.
Flexible and inconsistent in presentation of information.	Orderly and consistent presentation of information.
Provides general descriptions.	Provides accurate information.
Behaviour is unpredictable.	Reliable and predictable behaviour.
Creative and artistic presentations.	Prefers critical analysis.
Prefers drawing pictures to describe meaning.	Verbal and eloquent.
Values	
Sees many 'grey' areas.	Strong sense of right and wrong.
Usually accommodating of several beliefs.	Unyielding and rigid in belief.
Strives for synergy	Strives for perfection
Emotions	
Free with feelings	Controls feelings
Intuition + emotion = inspires movement	Intuition + logic = propelled into action
Time perception	
Now orientated	Future orientated
Less time sense	Time conscious
When under stress	
Loses ability to reason and acts without thinking.	Tries harder but does not achieve the desired results.
Feels overwhelmed and forgets details	Loses the ability to comprehend information.
May appear emotional and 'spaced out'.	May appear tense, mechanical and insensitive.

TOP AND BOTTOM BRAIN DOMINANCES	
COGNITIVE BRAIN (TOP)	**EMOTIONAL BRAIN (BOTTOM)**
Thought processing	
Draws on cerebral section of brain	Draws on limbic section of brain
Extensive use of thought processes	Extensive use of emotional interpretation of information
Acts of thought processes	Acts on intuition
Objective thought processes	Subjective thought processes
Controls feelings	Free with feelings
Conscious processing of information	Unconscious processing of information
Problems are solved by scrutiny	Problems solved on emotion and instinct
Rational behaviour	Impulsive behaviour
Decision-making based on thought processes	Decision- making based on intuition
Under stress	
Can be distant and aloof	Can be overly sensitive
FRONT AND BACK BRAIN DOMINANCES	
EXPRESSIVE (FRONT OF BRAIN)	**RECEPTIVE (BACK OF BRAIN)**
Communication	
Communicates well	Listens well
Participates and interacts with students	Observes students
Processes information externally through discussion	Processes information internally
Interacts with a wide circle of people	Interacts with a small group of people with more intense interactions
Behaviour	
Proactive in completing tasks	Can become reactive
Can be ignorant of the student's emotions	Sensitive to students emotions

Can behave impulsively	Appears to be passive
Behaves in an extrovert manner	Behaves in an introvert manner
May like to be the centre of attention	More reserved and does not seek attention
Leads the students by being a role model	Leads from the students through encouragement
Under stress	
Becomes over focused on the tasks at hand	Can be under focused on the tasks at hand and appears distracted

PHASE 3: OUTPUT OF INFORMATION	
 **HAND DOMINANCES**	
GESTALT HAND (LEFT)	**LOGIC HAND (RIGHT)**
Style of writing	
Writing free flowing	Writing is controlled
Often uses blank paper	Uses paper with lines
Uses coloured pens	Uses predominantly a blue or black pen
Undisciplined fine motor skills	Disciplined fine motor skills
Draws creatively	Copies drawings and wants to create replicas of the real image
Communication	
Written work is creative	Written work is structured
Talks using gestures and hand movements	Eloquent speech
Speaks metaphorically	Has an extended vocabulary
Uses emotional language	Uses factual language
Own best method of learning	
Hands on learning	Talks and writes to learn

 FOOT DOMINANCES	
GESTALT FOOT (LEFT)	**LOGIC FOOT (RIGHT)**
Style of action	
Takes spontaneous action	Takes consistent action
Not risk adverse	Does not like to take chances and sticks to rules and policies
Has innovative ideas	Sets high standards
Moves with a sense of freedom	Controlled movement
Decision making	
Makes decisions based on feelings	Makes decisions based on facts
Needs to move to assimilate information to make decisions	Can sit still when making decisions

3.9.5 INITIAL LECTURER FEEDBACK

An individual discussion was held with each lecturer to verify the tabulated interpretation that they received of their own profiles (see Appendix A). In addition each facilitator was requested to reflect on their learning opportunity with the following considerations:

During the intervention

What learning outcomes am I facilitating?

How do I intend to facilitate these outcomes?

What are my weaknesses (according to my Mind Dynamix Profile®) in facilitating these outcomes?

What are my strengths (according to my Mind Dynamix Profile®)?

What adaptation will I make according to my Mind Dynamix Profile®?

How will I implement these changes?

What benefits are there for the students?

After the intervention:

How did I improve my style of facilitating learning?

How will I measure the improvement?

How would I adapt this technique to use again?

3.9.6 FOLLOW UP

Six bimonthly workshops were planned in which the lecturers' style of facilitating learning was analysed and discussed in conjunction with their Mind Dynamix Profile®. All research participants had the option of individual and private discussions with me, or to be part of a larger discussion group. At these workshops it was intended that potential adaptations for facilitating learning would be discussed for implementation in future action research cycles.

In the reality of doing this research the follow up sessions were conducted differently, as frequently happens in action research. Instead of the six workshops that were initially planned I chose to speak to lecturers as often as possible. I recorded these findings in a research journal which has been archived with the research data. Various extracts from this data will be used as observations in my research findings.

3.9.7 CLOSURE OF THE RESEARCH INTERVENTION

A final questionnaire was included to consolidate any open ended questions that were pertinent to the research. This questionnaire would also provide closure on

the research process for the research participants (lecturers). A copy of this questionnaire is to be found in Appendix C.

Although my role within this research was to coordinate feedback and recording of results, it also included intense personal reflection on the actual data collection processes, as well as the continual management of feedback sessions. The fact that lecturers facilitated learning at a variety of venues at times prevented me from observing their facilitation interventions.

3.10 DATA INTERPRETATION

The data collected in this research was of a qualitative nature and was derived from the lecturer's Mind Dynamix Profile® and from subsequent interviews, discussions and questionnaire provided by lecturers. The data was interpreted from:

data collected from the Mind Dynamix Profile®
reflecting on lecturer feedback
reflecting on my own Mind Dynamix Profile®
developing an understanding of the lecturing environment
comparing observations of earlier lecturing scenarios with later ones as interpreted by the lecturers
understanding reflection theories and how they are put into practice by individual lecturers
by looking for commonalties between lecturers' profiles
deriving links between lecturer behaviour, the Mind Dynamix Profiles® and organisational behaviour
interpreting questionnaire feedback

During the research process it became evident that an in-depth study would emerge for only two of the research participants. Because of the richness of this data I included them as two different case studies.

3.11 ETHICAL CONSIDERATIONS

Permission to conduct this research was given by the Private Institution of Higher Education on condition that the research subjects volunteered to be part of the process, and that written permission is obtained from each participant. There were 26 lecturers employed at the time that this research was initiated, but the sample size depended on the number of volunteers who assisted in this research project.

Furthermore this research reveals aspects of lecturer behaviour that went beyond the scope of this research. It was important that this information remained confidential and that the identities of lecturers were protected. In reporting back the results to the Private Institution of Higher Education the validity of the tool must be stressed and not the weaknesses of the lecturer.

The stress of experimenting with an alternative style of facilitating learning opened up the potential for lecturers to underperform in their duties of facilitating learning. It is my belief that under such circumstances the lecturer will revert to his/her tried and tested styles of facilitation.

3.12 LIMITATIONS OF THIS RESEARCH

There were other external factors which could have reflected on the lecturer's style of facilitation such as:

This research investigates the role of the Mind Dynamix Profile® as a tool for reflection in facilitating learning. It does not consider the effect that the research subject's values could contribute to the research process.

Key performance assessments (KPAs), and resultant bonuses, which are completed in a six monthly cycle. When experimenting with lecturing styles lecturers may not have performed optimally and have been rated poorly on student evaluation forms which form the basis of this rating.

The lecturers were not familiar enough with the theory underpinning the Mind Dynamix Profile®, nor were they conversant enough in the use of the instrument.

The lecturer's interpretation of the Mind Dynamix Profile ® may have differed to the Mind Dynamix Profile ® consultant or the researcher.

The Hawthorne effect may influence results if lecturers' wished to please the researcher or institution management.

The availability of lecturer was sporadic as many of them travel extensively. This may skew reflective interview times and interpretations because they rely on memory.

Lecturers may feel uncomfortable sharing information with their colleagues and the researcher. This may include feelings of vulnerability which may result from exposing one's perceptions and beliefs.

The research design had to be adapted frequently because of the unavailability of the lecturers as initially planned. This unavailability was the result of heavy lecturing schedules experienced by the lecturers as well as the fact that they facilitated learning in various venues around South Africa.

3.13 TIME FRAMES AND RESOURCES

It was difficult to anticipate potential stumbling blocks, one of which was access to lecturers because they frequently facilitated at outside venues. Time allocations were therefore fairly broad.

Table 3.3 Research task breakdown structure

TASK	TIME PERIOD	NO. DAYS
Measuring of profiles and analysis	5 per day by Mind Dynamix Profile® practitioner	2 days
Interviews	5 per day	16 days
Transcription and analysis	1 per day	2 months
Final analysis and interpretation		3 months
Integration results and writing report		4 months

This research project did not require the input of finances except for printing which will be borne by the researcher. The Mind Dynamix Profile® consultant offered to provide services free of charge. Lecturers were not paid to participate in this research project.

The following chapter details the actual research findings that culminated as a result on this intervention.

CHAPTER 4

DISCUSSION OF MY RESEARCH STUDY

In chapter 3 I outlined the contexts, paradigms and described the methodologies that form the basis of this study. In this chapter I name my findings that arose as a result of this study.

4.1 MY REFLECTION ON THE RESEARCH PROCESS

In action research it frequently happens that the research sequence differs quite substantially from the one that was initially planned. This is as the result of the reflection process which occurs during each step of the research cycle, the findings of which frequently dictate the subsequent research cycle steps, making strategic planning difficult and ineffective. As Schön (McNiff, 2000:2) states this research followed the messy, uncontrolled and unpredictable style of research found in everyday real-life practices. During each step of the process I was compelled to adapt the research design by circumstances that arose from the Private Institution of Higher Education management decisions which could not consider my personal research timetable. This was impounded by an incorrect assumption that I made, which both Adlam (McNiff, 2000) and McNiff (2000) have experienced too. That assumption was that lecturers actually wanted to investigate their own practice of facilitating learning and that they would embed action research processes in their daily practice. This was not to be the case. McNiff's (2000:18) observations caused me to reflect on an issue that she has also found in her research practice, that people do not actually want to think

about how they should change their practice, when that current practice suits them well. According to Kelly (Zuber-Skerritt, 2001:58) people (lecturers) generally construe reality in an infinite number of different ways and change can only occur if they see their personal theories as open to refutation, and not as the objective truth. In my own experience I underwent that change when I became empowered by understanding my own personal Mind Dynamix Profile®. The change however would depend on the lecturers' individual openness to change of their own personal theories.

This research aimed to resolve the following research question:

> *To what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education?*

With the above reflections in mind the research process followed a number of steps some of which differed from the initial research design:

> The potential research subjects were exposed to the Mind Dynamix Profile® instrument
>
> Those who were selected to be part of the research project had their Mind Dynamix Profiles® identified
>
> Participants were asked to reflect on their initial response to their own Mind Dynamix Profile®
>
> The Mind Dynamix Profile® of each research participant was tabulated and divided into areas of strength and areas of development

The Mind Dynamix Profile® of each research participant was returned to them for discussion

Circumstances would not allow for six interventions. As a result numerous casual discussions and observations were conducted with lecturers.

Individual and group discussions were held with participants

A final email questionnaire was sent to research participants

Only one research participant requested an in depth interview to be conducted to expand on the research and action research concepts that were experienced in this research process

In a process in which I could understand and improve my own style of facilitating learning with the aid of the Mind Dynamix Profile® instrument, I also endeavoured to help others to understand their practice as lecturers.

The data that I collected include the following:

My own reflective diary in which I recorded observations and ideas
My own Mind Dynamix Profile®
The Mind Dynamix Profiles® of nine lecturers
Video and audio data recordings of lecturer's profile data
Reflections of the various reflective discussions held with lecturers
An outline of a mentoring workshop that I facilitated
Questionnaires from each lecturer
An in depth interview with one lecturer

Two case studies expanding on the action research cycles of RS 05 and RS 09

The original copies of the data are held in my research archive and I have included relevant excerpts of this data in the appendices.

4.2 INTRODUCING THE MIND DYNAMIX PROFILE®

In this first step I exposed potential research subjects to the Mind Dynamix Profile® instrument and the research design by means of an information workshop. Fifteen members of staff attended the workshop. Of those that attended only ten would be potential research candidates because they met the sample criteria. Eventually only five of the original participants actually became part of the research process. This elimination was the result of time constraints that prevented active participation in the research. Four additional research candidates who did not attend the workshop were later included in this research project at their own request, so in total nine research subjects took part in this action research study.

4.3 IDENTIFYING LECTURER'S MIND DYNAMIX PROFILES®

An independent Mind Dynamix Profile® consultant measured the profiles of six research participants on one day and two a week later. The last two remaining participants had their profiles measured at random intervals when appointments could be made for them. I did not have my Mind Dynamix Profile® identified because I have known it for several years, and believe that it stays consistent over time.

The first six participants had their profiles captured on video and also had the data of their profiles written by an independent scribe. I acted as the scribe for the remaining two profiles and these profiles were captured on audio recording. Circumstances dictated that the remaining profile had only a written record. At this point the scribe and I had no verbal input on the feedback to the research participants on the profiles.

The identity of the research participants (lecturers) is to remain anonymous as per the ethical considerations of this research and as a result they will be known only as RS 01 (Research Subject 1); RS 02 (Research Subject 2); and so on up to RS 09 (Research Subject 9).

4.4 REFLECTION ON LECTURER'S INITIAL RESPONSE TO THE MIND DYNAMIX PROFILE®

I analysed the data recordings to gain some insight into how the lecturers responded to the identification of their Mind Dynamix Profile®. The video recordings obviously provided the best data because I could see the lecturer's non verbal reactions as well. The table below lists the quotes that were extracted from video data of lecturer's response to the Mind Dynamix Profile®.

Table 4.1 The lecturers' initial responses to the Mind Dynamix Profile®

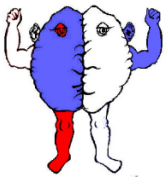
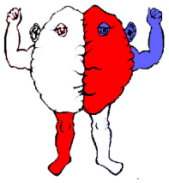
RESEARCH PARTICIPANT	RESPONSE
RS 01	*"Excellent, it's very good."*
RS 02	On aspects of the profile: "*It makes sense, that is what I thought too."*
RS 03	*"I thoroughly enjoyed the process and found it informative and affirmative. Informative in the sense that is provided information on a topic that interest me. Affirmative because it supported my views of myself."*
RS 04	"*This correlates well with what I think… Absolutely I am very, very impressed."*
RS 06	"I *felt comfortable that it is measuring what it is supposed to measure."*
RS 07	"*That it was objective although surprising."*
RS 08	*"The method of assessment was very interesting, and the corresponding analysis of the personality traits and characteristics was very accurate."*
RS 09	*"It verified almost everything I knew about why I do certain things in a particular way. I say that almost everything about the Mind Dynamix Profile® connected the dots for me."*

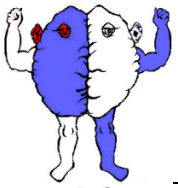
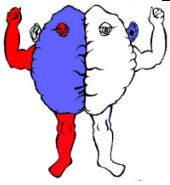
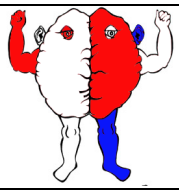
In further discussions with all the lecturers it became evident that they do agree with the findings of their personal Mind Dynamix Profile®.

The following table presents a summary of the findings of the research subjects Mind Dynamix Profiles®.

Table 4.2 A summary of Mind Dynamix Profile® dominances

Legend: L – Left; R – Right; T – Top; B – Bottom; F – Front; B – Back;
( ) - Functional dominance.
Red shading indicates gestalt dominances;
Blue shading indicates logic dominances

RS#	INPUT		PROCESSING			OUTPUT		PROFILE DOMINANCES	
	eye	ear	Left/right	Top/bottom	Front/back	hand	foot		
Researcher	R	R	L	B	F	R	R		
RS 01	R	R	R	T	F	R	R		
RS 02	L	R	R	T	F	R	R		
RS 03	L	R	L	B	B	R	L		
RS 04	R	R	R	T	F	R	L		

RS 05	R	R	R	T	F	L (R)	R		
RS 06	L	R	L	B	F	R	R		
RS 07	L	L	L	B	B	R	R		
RS 08	L	R	L	T	F	R	L		
RS 09	L	R	R	B	F	L (R)	R		
Totals (researcher not included)	3R 6L	8R 1L	5R 4L	4B 5T	7F 2B	2 L (R) 7R	3L 6R		

4.5 WHAT DO THE DOMINANCES MEAN TO THE PROCESS OF FACILITATING LEARNING?

The Mind Dynamix Profile® makes various predictions about dominant behaviour patterns (De Jager, 2005). I have made no attempt to prove the validity of these predictions in this research dissertation. In interpreting the Mind Dynamix

Profile® it is important for the reader to be mindful of the fact that the brain controls the opposite side of the body (see figure 2.4). For example the right eye, ear, hand and foot are controlled by the left brain hemisphere, and in a similar way the right brain hemisphere controls the left side of the body. The profile descriptions that follow highlight qualities and behaviours that the lecturers may display when facilitating learning as predicted by the Mind Dynamix Profile®. Note that only selective aspects of the profile would be relevant to each lecturer depending on his/her dominances. Appendix A contains tables of the lecturer's strengths and areas of development according to the analysis of their Mind Dynamix Profile®.

The interpretation of each of the 14 Mind Dynamix Profile® variables listed in this section effect the profile in totality as it is made up of more that the dominant parts (De Jager, 2005:42). The data to interpret the various dominances is deduced from table 3.2 in chapter 3, as well as from other interpretation tables designed by De Jager (2003). These tables are important tools for both the Mind Dynamix Profile® consultant and the researcher.

4.6 THE INPUT/GATHERING OF INFORMATION

The input phase represents how the lecturers gather and receive information. The brain receives input from the sensory system (Hannaford, 1995:73) and for the purpose of this research only the dominant senses of the eye or the ear are considered as these are the dominant senses traditionally used in the classroom learning process.

4.6.1 THE EYE

Of the total of nine lecturers, three had right eye dominance and six had left eye dominance.

CHARACTERISTICS OF THE RIGHT EYE DOMINANCE (LOGIC EYE)

According to the Mind Dynamix Profile® interpretive data tables it is predicted that the right eye is a good study eye and it can focus on written work for extended periods of time. The right eye dominant lecturer is likely to use situational analysis to ascertain student needs at that point in time. He/she may also prefer to pay attention to facilitating the achievement of the expected learning outcomes of a learning opportunity and tend to take an academic perspective to the learning process. Added to this he/she is likely to present written information in a structured and orderly fashion, adding a large amount of detail so that students can get as much information as possible from any given lecture. This behaviour could be recognised when writing on flip charts. The lecturer with this dominance could adopt a style that involves detailed facts with a lot of attention being paid to correct spelling, grammar and letter formation. Frequently script is written in blue or black.

CHARACTERISTICS OF THE LEFT EYE DOMINANCE (GESTALT EYE)

In drawing from the Mind Dynamix Profile® tables (table 3.2) it would seem that these lecturers have a creative eye which is interpreted as a passion for drawing and artistic pursuits as this releases creative energy. In the classroom this could be displayed by drawing pictures and diagrams to explain concepts. When using flip charts it is predicted that the lecturer would write notes using headings, bullets and pictures making them easy to read from a distance. Assignments may also be planned to present information in the form of diagrams and a table

making it easier for lecturer's to mark, without being distracted by the clutter of detailed information within texts.

The physical working environment is important to these lecturers in terms of monitoring stress. To alleviate stress it may be important to face a window or interact with nature because what they see may affect them emotionally and consequently affect their mood. These lecturers easily make provision for the movement and rearrangement of classroom and office furniture.

MY REFLECTION ON THE LECTURER'S EYE DOMINANCE

Although there were more left eye dominant lecturers in this sample I do not think that it is of significance. Traditionally the right eye is viewed as a more "academic" eye because of the ability to read accurately and objectively. For this reason right eye dominant lecturers would have an advantage over their colleagues in that they are able to read texts more accurately and mark assignments faster.

These lecturers have their desks in an open plan office space. All of those lecturers who are left eye dominant (RS 02; RS 03; RS 06; RS 07; RS 08; RS 09) commented independently that they find it extremely distracting to prepare lectures and to mark assignments in the office as their productivity is lower in this environment. This was not mentioned by RS 01; RS 04 and RS 05. It would be predicted by the Mind Dynamix Profile® that their left eye dominance is the reason for this. RS 03 and RS 06 both of whom are left eye dominant found it important to adapt their office environment to accommodate their visual dominance. Both of them commented on a conscious improvement in their stress levels when they were able to see the garden outside instead of looking at a wall. Unfortunately not all lecturers are in a position to change their desk orientation.

4.6.2 THE EAR

A total of eight lecturers have right ear dominance and only one has left ear dominance. This implies that for the majority of lecturers they have a mixed input dominance because most of them (6) have left eye dominance and right ear dominance. In this way they gather some visual information as gestalt (creative) information, but gather auditory information with detail and logic.

CHARACTERISTICS OF THE RIGHT EAR DOMINANCE (LOGIC EAR)

According to the Mind Dynamix Profile® interpretive tables, this style of hearing is objective, and the lecturer would probably listen for a linear sequence of information, listening to what is being said, rather than how it is said. Listening is critical and analytical, paying attention to underlying logic, rather that the emotion with which the speaker may speak. Most importantly, lecturers with this ear dominance listen to facts and details and remember exactly what was said (De Jager, 2006).

CHARACTERISTICS OF LEFT EAR DOMINANCE (GESTALT EAR)

Only one lecturer displayed left ear dominance characteristics, displaying subjective hearing, listening empathetically and to *how* things are said, rather than what is actually said. Lecturers with this dominance may generalise about heard information, because they focus on understanding the information rather that listening to the facts that are spoken. For this reason information may have to be repeated for accuracy.

MY REFLECTION ON THE LECTURER'S EAR DOMINANCES

Eight of the nine lecturers have right ear dominance. This is significant because lecturers need to listen objectively, accurately and to detail so that they can respond to student's questions and opinions. This involves critical and analytical listening skills, with a high level of auditory perception. RS 07 has left ear dominance. By implication this lecturer listens subjectively with emotion. In later discussions specific attention is paid to this profile.

4.7 PROCESSING OF INFORMATION

The processing of information occurs on three dimensions as discussed in section 2.8.5 of chapter 2. These are the left and right, top and bottom and front and back hemispheres (De Jager, 2005:42).

4.7.1 THE LEFT AND RIGHT BRAIN HEMISPHERES

According to the Mind Dynamix Profile® table 3.2, the left and right brain hemispheres deal with information processing as well as the integration of the left and right sides of the body. These hemispheres are concerned with the integration of logic and emotion, rationality and creativity, as well as the balance between structure and flexibility (De Jager, 2005:44).Four of the lecturers are right brain hemisphere dominant and five are left hemisphere dominant.

THE CHARACTERISTICS OF THE LEFT BRAIN HEMISPHERE (LOGIC)

The left brain hemisphere is generally accepted to contain logical characteristics. Lecturers with this dominance in the Mind Dynamix Profile® are predicated to process information in detail before being able to conceptualise holistic ideas. Most thought processes are also language driven, looking for precise information and comprehending numbers well. Left hemisphere dominant lecturers have a preference for written information in the form of letters, printing and precise detail. It is predicted that these lecturers would tend to organise their information in a sequential and structured way, often leading to a natural closure on their lectures. They also keep accurate records, often using a filing method.

Furthermore characteristics of this dominance would indicate that when lecturing lecturers focus on language correctness, using the correct terminology and semantics. Speech may be eloquent and accurately articulated. Information is presented in an orderly and consistent fashion, making lectures reliable and predictable. At times, in their desire to strive for perfection, they may come across as being unyielding and rigid in their presentation, with a strong sense of what is right and wrong. Time consciousness also plays an important role in facilitating learning.

THE CHARACTERISTICS OF THE RIGHT BRAIN HEMISPHERE (GESTALT)

The literature generally attributes this brain hemisphere to contain the gestalt or creative areas of the brain. This creativity is also associated with a certain level of emotion. In the Mind Dynamix Profile® it would be predicted that these lecturers process information from broad, holistic concepts and then analyse them to gather the necessary detail. Many of their thought processes may be emotionally driven, frequently using concept applications and expressive arts as part of their presentations. Lecturers could use simultaneous or radiant thinking patterns in

which the style of thinking is not linear, but allowed to go in a multitude of directions; at times leaving thought processes open ended. Buzan (2001:42) says that radiant thinking is vital for problem solving and creativity to be effective.

The style of facilitating learning also predicts that the focus of information would be on language comprehension, images, emotion and meaning of text, with a spontaneous presentation of lectures. They display a high level of flexibly in presenting the required information, with much general description which may at times lack sufficient detail. Typically these lecturers appear to have a limited sense of absolute values, and tend to identify many 'grey' areas, accommodating a variety of ideas. It is important for them to strive for synergy among a group though and so they tend to focus on the moment and frequently lose their sense of time.

4.7.2 TOP AND BOTTOM BRAIN HEMISPHERE PROCESSING

These parts of the brain deal with the cognitive (top) and emotional (bottom) capacities of the limbic system. In linking this information to the Mind Dynamix Profile interpretation in table 3.2 these sections of the brain are associated with the integration of conscious thought and gut feel, as well as objectivity and subjectivity (De Jager, 2005:43).

Among the research subjects five displayed cognitive dominance and four showed emotional dominance.

CHARACTERISTICS OF THE TOP HEMISPHERE OF THE BRAIN

The top brain hemisphere is generally associated with cognitive thought processes. It draws its processing from the cerebral section of the brain. In

processing information the lecturer may make extensive use of thought processes, presenting them in an objective manner. During lectures there is a conscious processing of information with decision-making being based on logistical thought processes and problems being placed under scrutiny. Lecturers who adopt a cognitive style control their feelings, resulting in rational behaviour. It is predicted that lecturers with this dominance would behave in a distant and aloof manner when under stress.

CHARACTERISTICS OF THE BOTTOM HEMISPHERE OF THE BRAIN

These lecturers draw on the limbic section of the brain resulting in an extensive use of an emotion and emotional interpretation when processing information. This may result in subjective thought processes, allowing lecturers to solve problems on emotion and instinct, with the unconscious processing of information. It would be predicted that under stress these lecturers could be over sensitive to people's responses to their behaviour, and be free with feelings.

4.7.3 FRONT AND BACK BRAIN HEMISPHERE DOMINANCES

In linking the Mind Dynamix Profiles® to table 3.2 the front and the back parts of the brain deal with expressive communication (front) and receptive (back) capabilities of the reptilian brain. These parts of the brain also deal with integration of action and observation as well as expression and contemplation (De Jager, 2005:42).

Seven of the lecturers displayed front hemisphere dominance, demonstrating that the majority of lecturers have dominance for strong communication.

CHARACTERISTICS OF THE FRONT BRAIN HEMISPHERE

The front portion of the brain is associated with communication and speech. According to the profile instrument it would be predicted that lecturers with this dominance communicate well and participate and interact well with all of their students, regardless of the student's learning style. They need to communicate to process information and so talk to process information externally.

These lecturers easily interact with a wide circle of people, often behaving in an extrovert manner, even impulsively. Generally they lead their students by being a role model. At times they do like to be the centre of attention and in so doing may be ignorant of students' feelings and emotions. Under stress they could become over focused on the task at hand.

CHARACTERISTICS OF THE BACK HEMISPHERE OF THE BRAIN

The Mind Dynamix Profile® predicts that these lecturers listen well and spend time quietly observing students. They process information internally, and may prefer to interact intensely with small groups of students. The behaviour of these lecturers demonstrates sensitivity to the emotions of students, but they themselves may be reserved, behaving in an introverted manner and not seeking attention for themselves. Instead they lead their students through encouragement. Under stress they may become unexpectedly reactive or even appear under focused on the task at hand.

4.7.4 MY REFLECTION ON THE PROCESSING OF INFORMATION WITHIN THE BRAIN

Logic dictates that a lecturer should be able to display effective verbal and non verbal communication skills. This would be particularly true of lecturers who are expected to interact with students for many hours per day. The two lecturers who were back brain hemisphere dominant (receptive) were RS 03 and RS 07. In their feedback from the Mind Dynamix Profile® consultant it was suggested to both of them to keep the number of their lecturing interventions to the minimum. The following was written about their lecturing frequency:

> Your profile indicates that you would undergo too much stress if you facilitate lessons on a regular basis because although you have strong language skills, you are not an extrovert (Mind Dynamix Profile Consultant, 2009).

In practice this is the reality. All the lecturers facilitate learning practices week after week, yet these two lecturers' now only present occasional lectures and have subsequently moved from lecturing into management positions.

Table 4.2 above also indicates that all the lecturers, except RS 09, who are right brain hemisphere dominant also display cognitive (top) dominance, implying that even though they may think creatively, they still present information in an analytical way. Also of significance is that the left brain dominant lecturers also have expressive (bottom) dominance. Only of the lecturers (RS 09) displays the combination of being right brain and emotional dominance and none are left brain, cognitive dominant. According to the Mind Dynamix Profile® interpretive tables this is significant within the lecturing environment because it allows learning opportunities to be analysed and then presented in a logical and sequential manner, using conscious and abstract reasoning. This ability is then combined with emotion, passion and creativity which are gestalt and expressive characteristics, bringing a sense of balance to their lectures. This balance

predicts that lecturing is then done in a whole brain and whole body manner allowing balanced amounts of logic and gestalt characteristics to be present when facilitating learning.

4.8 THE OUTPUT OF INFORMATION

According to the Mind Dynamix Profile® lecturers demonstrate competence through output of verbal and written communication as well as through their actions.

4.8.1 THE HAND

The hand symbolises both written and verbal communication and also governs fine motor control (De Jager 2005:49). Seven of the lecturers have right hand dominance and two have left hand dominance but have also adopted functional right hand dominance. According to De Jager (2006:38) this is a common feature and is often seen in left-hand dominant people. They ultimately choose their right hand as an alternative. This behaviour is often the result of seeing others do it and because most implements and tools are right handed. This becomes their functional hand. In terms of communication style it would mean that they have access to both parts of the brain controlling the way they express. However, under pressure it may become difficult for the brain to decide which way to verbalise.

CHARACTERISTICS OF RIGHT HAND DOMINANCE (LOGIC HAND)

The right hand is controlled by the language orientated left brain hemisphere and is more apt at fine motor control in the form of neat hand writing (De Jager

2006:43). Lecturers with right hand dominance are therefore predicted to adopt a writing style which is controlled, displaying disciplined writing skills and they frequently preferring to write on lined paper with blue or black pens. It would also be expected that these lecturers would use structured forms of communication using eloquent speech, factual language and extended vocabulary. Their own best style of learning is through both talking and writing.

CHARACTERISTICS OF LEFT HAND DOMINANCE (GESTALT HAND)

The left hand is controlled by the right brain hemisphere and so the Mind Dynamix Profile® interprets this as lecturers use a free flowing style of writing, often writing on blank paper and making use of a variety of coloured pens (De Jager 2006:43). They may display fairly undisciplined fine motor skills. Their written work is creative, and they frequently talk using many hand gestures. Their speech is metaphorical and they use emotional speech in their conversations. They also prefer to incorporate experiential activities in their lecturing.

MY REFLECTION ON THE LECTURERS' HAND DOMINANCES

A significant characteristic has emerged with the dominances of the lecturers in this research study. All the lecturers, bar two, are right hand dominant. In measuring RS 09 and RS 05 profiles the Mind Dynamix Profile® consultant found it very difficult to differentiate between the hand dominances of these two lecturers and concluded that although they are left hand dominant they have adopted a very strong right hand functional dominance. The implication is that they predominantly use their right hand by choice. This means that all of the lecturers use their right hand dominance when lecturing. This is significant because lecturers are expected to have superior and effective communication skills and to provide precise written and verbal detail.

4.8.2 THE FOOT

According to De Jager (2006:44) the feet are representative of how the lecturer prefers to move forward and are also relevant for decision making. There is an almost equal distribution of lecturers with right and left foot dominance. The feet are representative of the characteristics listed below according to the Mind Dynamix Profile® (table 3.2).

CHARACTERISTICS OF THE LEFT (GESTALT) FOOT

These lecturers are predicted to be innovative and move with a sense of freedom, often needing to physically move to assimilate information. They display a spontaneous action, and are not adverse to risk when taking on new tasks. They frequently make decisions based on feelings.

THE RIGHT (LOGIC FOOT)

These lecturers behave in a consistent fashion, making decisions based on facts. They do not like to take chances on implementing policies and procedures. As a result they also set high standards for themselves. These lecturers can sit still for long periods of time and do not need to move to assimilate information.

MY REFLECTION ON THE LECTURERS' FOOT DOMINANCES

No significant patterns were observed in this part of the profile. However, in observing the lecturers in an open plan office space, it is clear that the left foot dominant lecturers (RS 03; RS 04 and RS 08) are more inclined to take risks. They also like to walk around, and according to the Mind Dynamix Profile® this is frequently done so that the lecturer can assimilate information.

This is emphasised by RS 08's comment which says: "Sometimes I need to remove myself from the office and need to move around and so I walk around."

4.9 FURTHER REFLECTION ON THE INTERPRETATION OF THE LECTURERS' PROFILES

At all times it must be remembered that the Mind Dynamix Profile® is a model and should never be seen as an accurate representation of brain functioning.
In the literature study reference is made to the fact that the Mind Dynamix Profile® has three distinct patterns of the flow of information, namely mixed dominances; free flowing and blocked (table 2.4).

I have observed that the majority of lecturers (RS 02 – RS 09) have mixed flow of information in their Mind Dynamix Profiles®. This means that part of the sensory-motor system is on the same side as the dominant brain hemisphere and the rest on the opposite side. The implication of this is that some of the information is free flowing when compatible with the brain hemisphere. In the profile the free flowing information would implicate the lecturer's areas of strength. On the other hand areas that create barriers, and information does not flow freely are the lecturer's areas of development. It frequently also takes a longer time period for the blocked information to be processed (De Jager, 2009a).

RS 01 has a blocked flow of information in his profile. This type of profile shows dominance in one hemisphere and all sensory channels are on the same side. To access the dominant eye, ear, hand and foot, the lecturer must switch off the dominant brain hemisphere and the corresponding part of the personality that feels authentic (De Jager, 2006:46). This results in him frequently feeling

"different" and excluded from their environment. In the profile video of RS 01 this lecturer stated that he has "frequently felt confrontational" and in his final questionnaire he said that "did not want to be caught in a little box". This could potentially create a barrier for the lecturers in terms of their lecturing style. In observing this lecturer however, I have become convinced that their maturity and life experience has allowed him to overcome the potential problems of a blocked profile through adaptation of behaviour and focusing on his areas of strength. These observations are recorded in my reflection journal and will be summarised later in this dissertation.

4.9.1 COMMONALITIES BETWEEN THE PROFILES

When considering the lecturer's profiles it must be remembered that no aspect of the profile functions in isolation. Each lecturer is a combination of individual processes and it is the combination of dominances that presents itself as a lecturing style. All of the lecturers display a mixed combination of logic and gestalt characteristics to a greater or lesser degree, implying that they present a combination of emotion, creativity, and holistic thinking as well as controlled logic and detailed processing. The majority of lecturers however also show some similarities in lecturing style strengths. These include listening with the right ear, using the frontal lobe dominance of the brain, resulting in the lecturers being expressive, some degree of logic or cognitive brain dominance and right hand dominance. These characteristics show common dominant strengths in the lecturer profiles.

4.9.2 DIFFERENCES BETWEEN PROFILES

Two profiles stand out as being distinctly different to the other lecturers' profiles. They are RS 03 and RS 07. As discussed in the above section on front hemisphere (expressive) dominance, these two lecturers have withdrawn from the lecturing process, in favour of moving into management positions. The more detailed analysis of their profiles below adds more insight.

RESEARCH SUBJECT 03

In analysing the Mind Dynamix Profile® of lecturers, the Mind Dynamix Profile® consultant found that RS 03 was able to easily draw from both her left and right brain hemisphere. This was the result of a strong functional right hemisphere functioning being identified by the Mind Dynamix Profile® consultant, even though she is left brain hemisphere dominant. Theoretically this is a state to strive for because it allows the lecturer to easily draw information from both brain hemispheres. This is an obvious benefit for any lecturer because they can interchange between thought processes very easily. However RS 03 is also receptive. This means that although she is easily able to access information between hemispheres she struggles to communicate that information to the students and finds the interaction with them overwhelming. In student feedback they indicate that she has an excellent rapport with them, easily combining creativity with factual information, but she herself finds the process unsustainable and intense. This is a common characteristic of receptive dominance.

It therefore became apparent that this lecturer was using his whole brain and whole body flexibility in most areas, but that she failed to integrate the front and back dimensions of her brain.

RESEARCH SUBJECT 07

The receptive dominance characteristics can be also observed in RS 07. Furthermore this was the only research participant who was left ear dominant, displaying emotion in what she hears.

This research subject was enthusiastic about being part of the research process, but thereafter only participated on a minimal level. She gave no reasons for her lack of participation but it came at a time when she also moved to management level. In this position she no longer lectures and in discussions with her, she said that she preferred not to interact with the students on a regular basis. As a result it became difficult to observe any adaptations that were influenced by the Mind Dynamix Profile®.

RESEARCH SUBJECT 02

During the initial stage of the research study RS 02 withdrew from the research project as she resigned from the Private Higher Education Institution. For this reason she no longer contributed to the further research processes. Although the parameters of this research prevent me from expanding on this issue, a number of observations from her profile indicated that there may have been evidence of areas that needed development to enhance her quality of the lecturing experience. The following extracts from her profile report do provide evidence of this (Mind Dynamix Profile® Consultant, 2009):

> You find structure and control of administrative processes difficult.
> Your manager requires measurable outputs from you and this creates tension between you.
> Your left eye dominance creates a problem for you with regard to marking as it often not accurate and leaves out detail and facts.

From this research subject it became evident that without the ability to be flexible and adaptable in completing tasks, the lecturer may suffer consequence to their behaviour. This lecturer was clearly unable to adapt her Mind Dynamix Profile® according to her environment in some areas.

4.9.3 REFLECTION ON THE RESEARCHER'S PROFILE

As the researcher I have found that profiles of RS 03; RS 07 and RS 02 are particularly intriguing. It became evident while observing the research subjects that those not involved within this research project merely viewed the behaviours of RS 03 and RS 07 as part of their persona. In my position I felt as though I had an in depth insight into their behaviour. The knowledge that I had of their profiles allowed me to have some level of tolerance for their behaviour, but I also began to distinguish different patterns in their behaviour which were synonymous with their profiles. They clearly saw no need to adapt their style of thinking to incorporate whole body and brain integration during this research process.

My own profile is largely analytical and logic based. However there is a portion of overwhelming emotional sensitivity that frequently hinders clarity within the logical thought processes that I experience. A detailed copy of my own profile is in Appendix B. When under stress I frequently over focus on detail and sometimes I find that it is my own profile that is unable to see beyond the narrow focus of lecturing. This is an area of development that I have consciously had to focus on and through experience and insight have managed to take a more optimistic and insightful view.

In doing action research I noticed that the lecturer's action research cycle and my own were inextricably linked. Any observation made would start an independent

research cycle by the lecturer. At some point they would provide me with feedback on their reflective process and it would then trigger a new action research cycle in of my own. This is illustrated in the figure below.

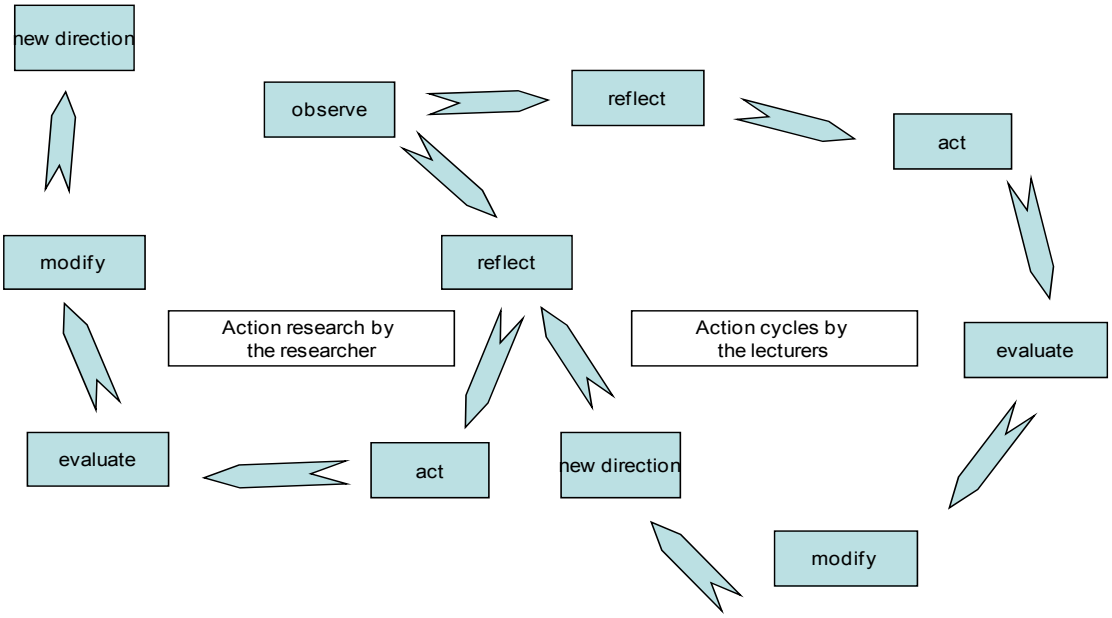


Figure 4.1 The interrelationship between the lecturers' and the researcher's action research cycles

4.10 FOLLOWING UP ON THE MIND DYNAMIX PROFILE®

In the initial design of this research I planned to interact with the lecturers on a one-on-one basis for reasons of privacy and to keep research subjects anonymous. The appointments for the one-on-one interviews were consistently cancelled by all lecturers who cited work pressure as a reason. I then planned six group feedback sessions. Of the six sessions only one could actively be conducted. The reasons for this were multiple, but the main reason was a lack of time and predictability in their schedules that the

lecturers actually had under their pressurised lecturing schedules. Many of them were lecturing continuously for periods of up to 4 weeks. These schedules are inflexible and often result in the lecturer being out of the office for extended period of time. As the researcher I found this extremely frustrating and so had casual discussions with the research subjects as frequently as possible. Although these discussions were not recorded I made various observations that were recorded in my own reflective journal. The need for time in reflection is supported by McNamara (Hatton & Smith, 1995), who suggests that in order to foster effective reflection; time and opportunity for development are required, so that the required essential metateaching and metacognitive skills can be acquired.

The one feedback session that did take place was attended by RS 04; RS 05; RS 08. At the session they again verified that the Mind Dynamix Profile® validated and supported their style of facilitating learning. An interesting point was raised when I questioned them on how knowledge of their profile had influenced their lecturing behaviour while facilitating learning. They felt that although they had an understanding of the implications of their Mind Dynamix Profile®, they also thought that there was a need for some form of mentoring or coaching to take place to use the profile findings more effectively. The discussion points that they raised are tabulated below:

Table 4.3 Lecturers' feedback on their Mind Dynamix Profile®

RESEARCH SUBJECT	THEIR COMMENTS
RS 08	*"What I do understand now is why I hate marking... it is dull; repetitive and boring. It needs much routine and I lack a good memorandum to do it well."* *"The office layout and surroundings have a huge impact on how I operate. Sometimes I need to remove myself from the office and need to move around and so I walk around. Otherwise I just shut myself off and blank out."*
RS 05	*"I need space… I love teaching and love to interact with other people. The people we teach are an NQF level of 4-8. I take strain teaching those on a NQF level of 4. Those on an NQF level of 8 make understanding easier and I can explain the concepts to them without having to fill in the details."* *"To avoid office pressure I keep my face expressionless as it keeps my power to me."*
RS 04	*"The profile has created an awareness of the dynamics that function in my environment. Just love using the analogy metaphor in the way that I teach, because it allows me to think more on an abstract level. In the office it is difficult to function on that level."*
RS 08	*"I can't seem to make that shift. I am quite satisfied with how I teach and can't imagine how to change my teaching style. I would like you to tell us how we could change some aspects of our teaching through using the profile, and I would like you to mentor us through the process by coming and helping us to do it in the classroom."*
RS 05	This lecturer requested that I as the researcher sit in on his lecturing sessions and provide guidelines to enhance his style of lecturing. He has a relatively formal style to his lecturing and he expressed a desire to include more experiential learning when facilitating learning, but he had reservations about this because he had never seen it put into practice. He wanted to be coached into implementing these processes. He added: "*I want to do more playful stuff in my classroom because sometimes it gets serious, and I feel that I lecture too much. I need you (the researcher) to help me to think of those ideas and help me to implement them in the classroom."* The results of this intervention are recorded a case study 1.

Around this time during my research, but not in response to the above findings, the Private Higher Education Institution requested that I conduct a demonstration workshop on facilitation skills to be used in the classroom. All topics were demonstrated as a series of short facilitated tasks, with a variety of skills being demonstrated. The main emphasis as the researcher was to demonstrate the skill of combining creative (gestalt) activities with systematic (logical) facts and information. All tasks were experience based, and immediate formative assessment of lecturers took place to check their understanding of the processes. The tasks included:

Including physical movement with cognitive learning processes
Switching on both hemispheres of the brain to increase performance
Recognising the effect of one's emotions while lecturing
The need for laughter and relaxation for learning pleasure
Challenging one's own lecturing paradigms

All the lecturers except RS 02 attended the workshop and they recognised the valuable mentoring role that the workshop offered in facilitating learning. More than the skills that the workshop offered were the changes in lecturer perception that it was permissible to combine lecturers with interactive games and exercises. They realised that by using these tools they could deliver learning experiences that not only have a high impact, but also allow the students also participate in the class. Zeichner (Hatton & Smith, 1995), recognises that problems in lecturing also relate to the structure and ideology of the total programmes in order that the development of reflection may be encouraged. He continues that a critically reflective approach involves models of 'best practice' and the recognition of conflict between the institution's ideals and lecturer's practice of facilitating learning. Supportive environments can foster change in reflection. In analysing the lecturers' profiles, a predominant feature of their profiles was their ability to be flexible when facilitating learning (RS 01; RS 02; RS 04; RS 08; RS 09).

Interactive lecturers are flexible, and consequently the lecturers can shift easily between a traditional form of lecturing and an interactive method with very little effort (Thiagarajan, 2005:4). This flexibility would easily allow them to adapt their style of facilitating learning if they felt the support of intuition management in the shift in ideology. With institution management partaking positively in the workshop, I believe the mentoring process permitted less traditional approaches in facilitating learning and a paradigm shift was made by lecturers.

4.11 ACTION RESEARCH CASE STUDIES

Two of the lecturers embraced the research process and every effort to incorporate flexibility in their style of facilitating learning. The figure below represents the interrelationship between my action research cycles and theirs. The spirals represent the ongoing cycles. At times these spirals would meet when we interacted (as represented in figure 4.1) and discussed the learning opportunities and their implications and at times we would all reflect independently of each other.

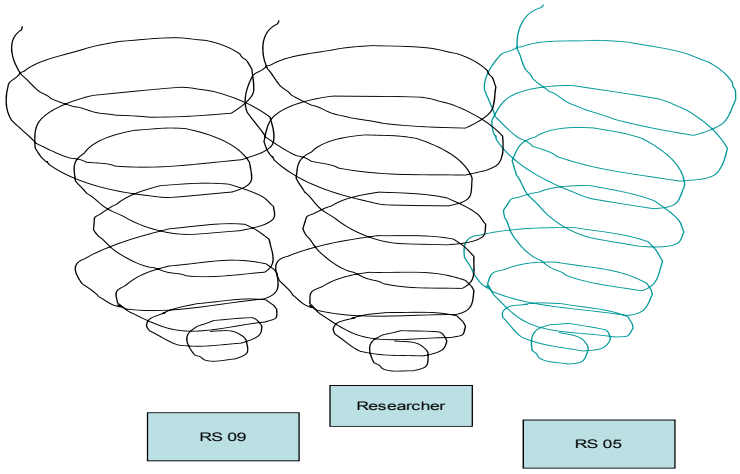


Figure 4.2 The interrelationship between the action research cycles of researcher and RS 05 and RS 09

4.11.1 AN ACTION RESEARCH CASE STUDY: RESEARCH SUBJECT 05

It was clear that the facilitation workshop influenced RS 05 who has asked specifically for lecturing guidelines because he asked many questions after the workshop. I have summarised the various steps this lecturer implemented to change his style of facilitating learning.

Figure 4.3 RS 05's Mind Dynamix Profile® Man indicating dominances

Although an in-depth description of this profile's strengths and weaknesses can be found in Appendix A, I have summarised the important factors of this profile for consideration. This lecturer's genetic Mind Dynamix Profile® indicates that his visual and auditory inputs can become blocked when he is under stress. This can be seen in the illustration below where there is no open flow between the eye, ear and left brain hemisphere. In table 4.3 he indicates that: *"To avoid office pressure I keep my face expressionless as it keeps my power to me."* According to the Mind Dynamix Profile® interpretation his processing skill is blocked (see table 2.4) when he is under stress and he needs a longer time to process this information before he can communicate any response to it.

Similarly there is no open flow between this lecturer's output of his left hand and his left brain hemisphere. However in identifying this lecturer's Mind Dynamix Profile® the consultant noticed that he had selected a strong right hand functional dominance. This would have opened his flow of verbal and written communication. According to the interpretation of the Mind Dynamix Profile® he has a fast response time between processing information in his left brain hemisphere and his right leg, allowing him to act in a precise, controlled and constant way. He does however rely strongly on a specific style and techniques in carrying out his action.

RS 05 is cognitive and expressive. Within the Mind Dynamix Profile® this indicates that he is focused on output of information and capable of conscious and abstract reasoning.

The above characteristics were reflected in his style of lecturing in that he used traditional styles in his method of facilitating learning. In observing him in the classroom, I became aware of his typical "chalk and talk" method of facilitating learning, he stood in the front of the classroom ad wrote extensive notes on the whiteboard. This lecturer has extensive formal tertiary education and he insisted that in terms of his own education this was the only culture of learning and lecturing that he had ever experienced.

In discussing lecturing styles RS 05 frequently used the term "I want to play more" in my classroom, as he felt that his style of facilitating learning was restrictive and formal. He felt that he could also improve his feedback evaluations that he received from students. These evaluations are conducted by students after each learning opportunity and provide feedback to the Private Higher Education Institution's management on the lecturer's performance

As the researcher I conducted a number of action research interventions with him. The results of these interventions are summarised in the action research cycles indicated below.

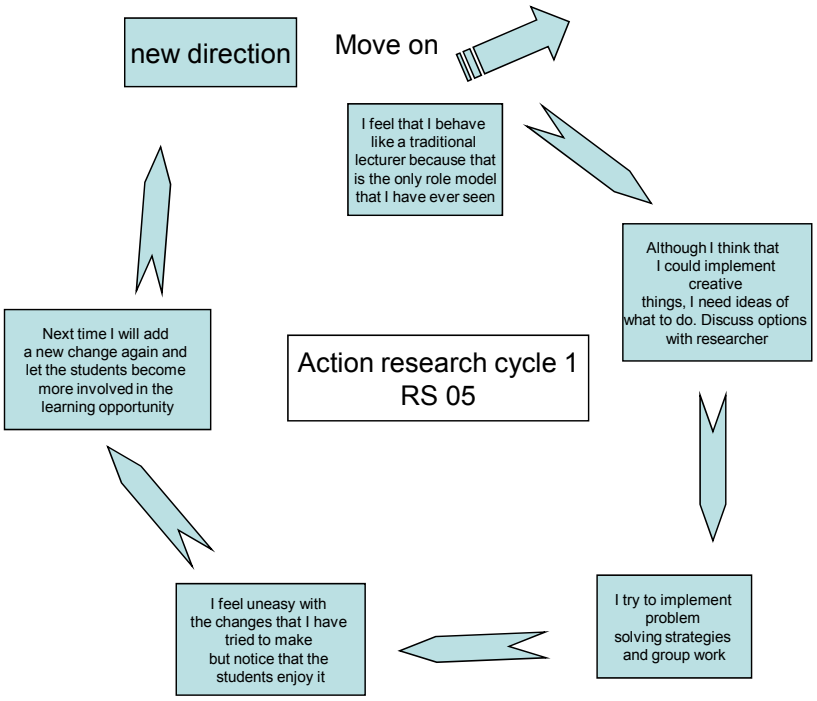


Figure 4.4 The first action research intervention

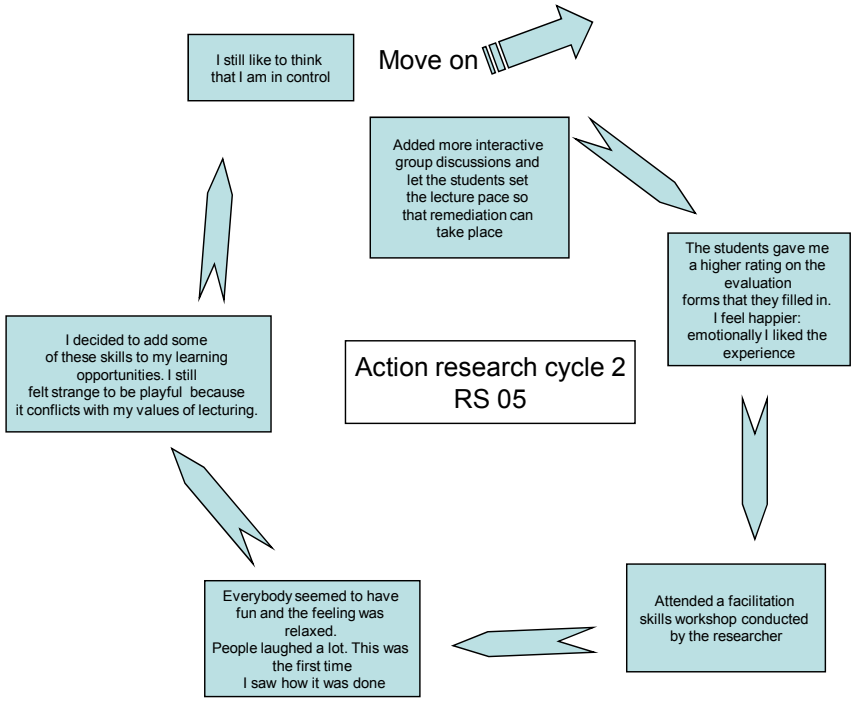


Figure 4.5 The second action research intervention

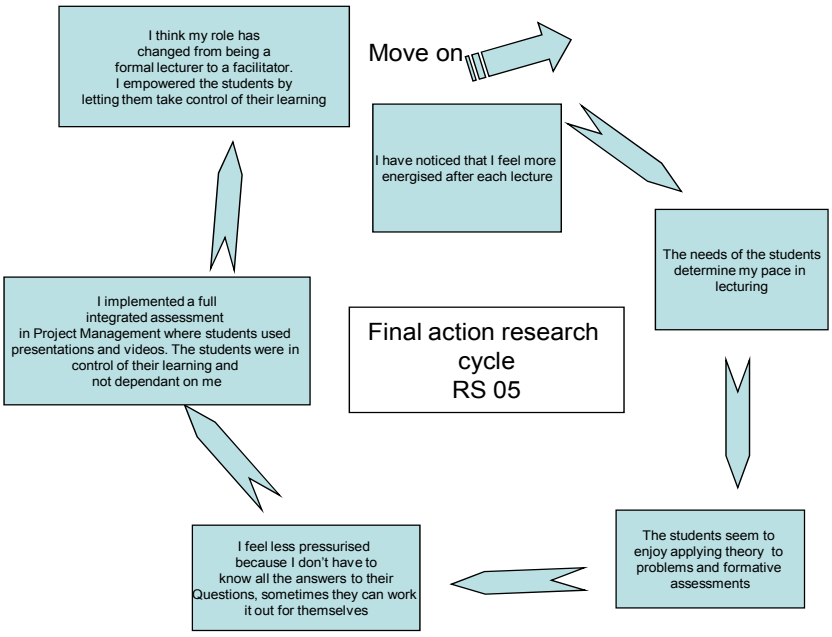


Figure 4.6 The final action research intervention

THE RESEARCHER'S REFLECTION

Towards the end of this research this lecturer (RS 05) approached me excitedly and shared with me that at last he had moved from being a traditional lecturer to a "*real learning facilitator – because he had allowed the students take control of their learning environment instead of holding it himself".* In terms of this research he had then reflected deeply and analytically enough on this Mind Dynamix Profile® to adapt a major area of development into an area of strength. Although he previously held his emotional control to himself, his delight in the change of process was infectious. This process as it stands is still incomplete because he still requests help with facilitation ideas, but he has moved in a new direction with his skill at facilitating learning. He frequently adds CDs and other additional material to his learning opportunities and recently commented that his student evaluation scores have improved.

This case study shows a lecturer who implemented learning style flexibility and was able to implement change with the aid of extensive mentoring and coaching guidelines. Moving forward he has become less dependent on these interventions and now tells me more about what he does in the classroom and asks me less to help him with the process. At the point where he manages this process alone, true integration will have taken place.

4.11.2 AN ACTION RESEARCH CASE STUDY: RESEARCH SUBJECT 09

RS 09 has a completely contrasting Mind Dynamix Profile® and lecturing style to RS 05. He entered the lecturing environment without any formal education and training and has built his way up to his present position as Senior Lecturer

through experience alone. This is restrictive in the lecturing environment because he is limited by the Council of Higher Education's policies that limit him to lecturing non-academic courses such as skills courses. He feels that this is a barrier and he feels that he has to "*prove himself all the time"*. Extensive data about his feelings about this situation are recorded in an in-depth interview and held on a CD in the research archives.

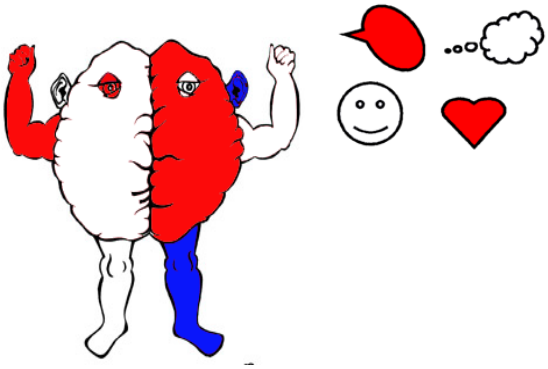


Figure 4.7 RS 09 Mind Dynamix Profile Man® indicating dominances

From the above Mind Dynamix Profile® it is evident that this lecturer has an enormous amount of emotion (as indicated in red on the Mind Dynamix Profile®; logic is indicated in blue) in his processing of information, showing neither cognitive nor logical processing skills. What he hears is blocked in terms of input and he has no direct flow of output. Like RS 05 he has adopted a right hand functional dominance, indicating that he is capable of structured communication. Yet this lecturer is one of the top performing lecturers in the Private Higher Education Institution as rated by student evaluations. I found this intriguing because in terms of his profile he should not perform so well. He embraced the Mind Dynamix Profile® and like RS 05, frequently asked questions and wanted to be mentored and coached in how to adapt this lecturing style. Yet his need was not one to learn how to play, but rather on how to be "more academic" in his style of facilitating learning.

The following action research cycle shows the adaptations that he made.

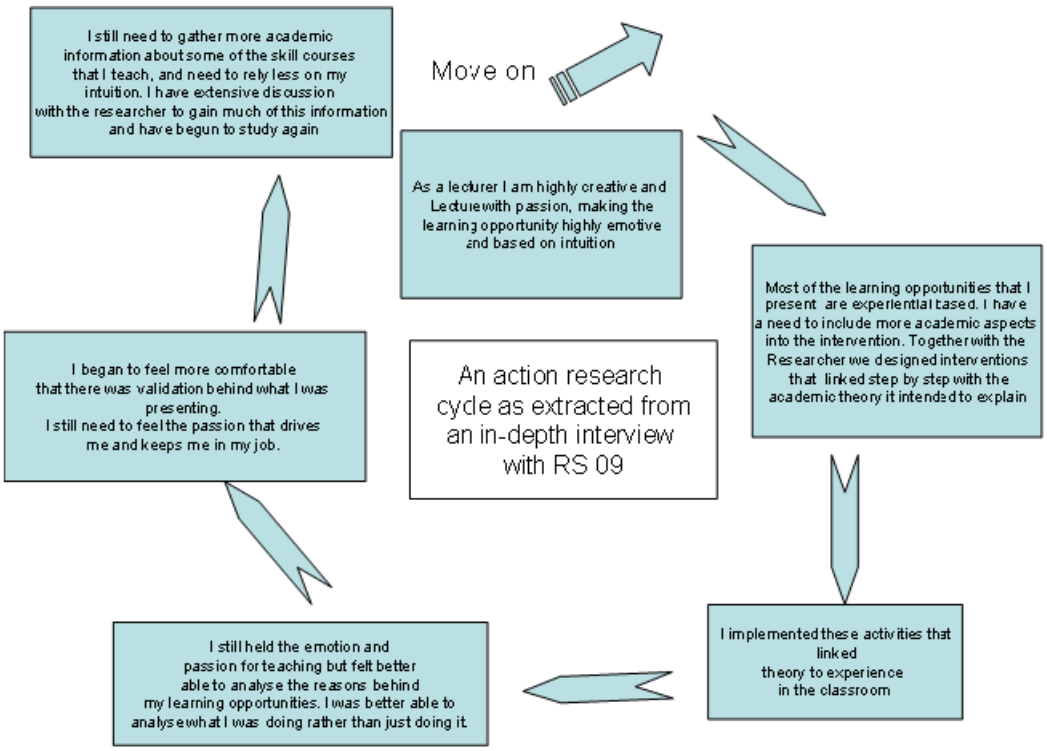


Figure 4.8 An action research cycle as extracted from an in-depth interview with RS 09

THE RESEARCHER'S REFLECTION

At the end of this research intervention I conducted an in depth interview with RS 09. He had also followed a similar pattern to RS 05 in terms of reflection, although he did not record them. I think that the interview served as a reflective instrument for him to understand the various processes that had taken place as he had not always included me in his reflective process. He emphasised that he had began to understand that the students in his class are all different, and learn best according to their own learning profiles. He

felt that this knowledge allowed him to become more flexible in his lesson presentations and he adapted his lecturing style to accommodate a variety of tools and methodologies. The Mind Dynamix Profile® predicted that he has high levels of creativity to draw on. In the interview he stressed the empowering feeling that the Mind Dynamix Profile® instrument gave him because he felt that firstly he understood his own lecturing style and secondly he has resources on which he can depend to come up with new ideas in adapting his lecturing to enhance the facilitation experience for the students.

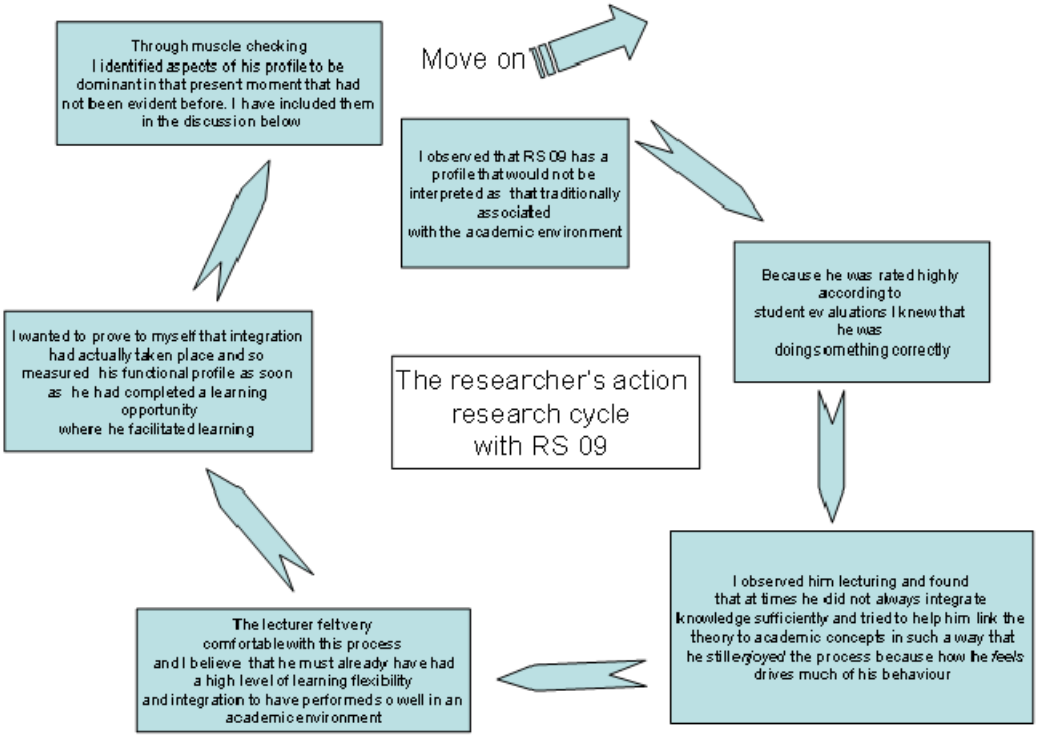
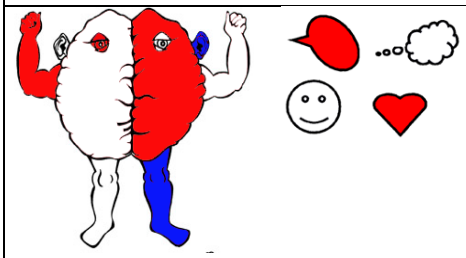
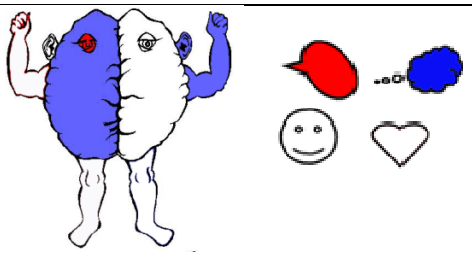


Figure 4.9 The researcher's action research cycle with RS 09

RESEARCH SUBJECT 09'S FUNCTIONAL PROFILE

One day immediately after a RS 09 came out of a lecturing session I identified his functional profile to ascertain if this differed from his genetic profile. This was the result that I found using muscle checking. I omitted to identify his dominant foot in this process.

Table 4.10 A comparison of RS 09 genetic and functional profiles

Genetic profile	Functional profile
	

In the above table red shading refers to the presence of emotional or gestalt dominances and the blue refers to logic dominances. It then became evident that although RS 09 has such strong emotional tendencies, he does have the ability to change over to use a functional profile which shows a strong sense of logic (left brain hemisphere) and cognitive (top hemisphere) thought processes in the lecturing process. His hand dominance also changed, but his eye and ear dominance remained the same. It was only through flexibility and integration that this would have been possible. This observation indicates that the lecturer was actually able to swop hemisphere dominance depending on the requirements of the specific situation.

4.12 CONCLUSION ON THESE CASE STUDIES

These two lecturers both display higher levels of creativity and emotion in their communication and outputs than other lecturers according to their Mind Dynamix Profile®. RS 05 however remains quite about his emotions and RS 09 speaks about them. Their emotional dominances are indicated by the fact that they were both left hand dominant but chose functional right hand dominance. I found it significant that these were the only two lecturers that displayed this dominance and they were the only two that embraced the research process to a high level. This raised the question in my mind as to whether the lecturer's skill for creativity and emotion has a contributing factor to play in reflective competence. Brockbank and McGill (1998) suggest that emotion is a source of human energy and that this may shift a lecturer from single-loop to a double-loop learning model. In this model, single-loop learning change can happen to strategies and assumptions, but double-loop learning challenges underlying values and paradigms of learning through reflection. I make no attempt to answer the question of whether emotion could result in reflective change in this dissertation.

4.13 THE FINAL QUESTIONNAIRE ON THE MIND DYNAMIX PROFILE®

The final questionnaire was drawn up for two reasons:

To ask some questions of lecturers that I had been unable to ask during the research study

To bring closure on the research study for myself and the lecturers

In the questionnaire I asked the following questions:

What was your impression of your own Mind Dynamix Profile® when it was first identified?

What was your reaction to the written explanation of your Mind Dynamix Profile®

In what way has the process of sharing your Mind Dynamix Profile® with you impacted on the manner in which you facilitate learning?

Do you think that your present style of facilitating learning was taught to you or did it develop intuitively?

If you felt the need to adapt your style of facilitating learning to become more “adept at your craft”, how would you do it?

Has your Mind Dynamix profile® had any effect on any of your other behaviour in your working environment? Please provide details.

During discussions with you so many of you mentioned that you love lecturing. Many of you spoke of a “driving passion” or “love of what you do” as a motivating factor for continuing in your profession, even when stressed and in difficult times.

If you do feel this way about lecturing, then please expand on your perception of this concept and explain how it manifests itself to you.

How would you describe the concept “whole brain lecturing”?

How would you experience spiritual intelligence in your practice of facilitating learning?

All the results of this questionnaire appear in Appendix D. Question 3 provided me with insight into how deep the reflection of each research participant was.

Table 4.5 Indicates the research subject's responses to question 3

RS #	QUESTION 3 **In what way has the process of sharing your Mind Dynamix Profile ® with you impacted on the manner in which you facilitate learning?**
RS 01	At this time nothing dramatic has changed however I am aware of more things.
RS 02	WITHDREW FROM RESEARCH STUDY
RS 03	I am more aware of the fact that other people also have strong and weak areas and are more observant to determine what they are. I also try to group learners together that my support one another, i.e. left and right brain dominant learners instead of having one group that is only left brain dominant and another that is only right brain dominant. I also try to vary the activities and my facilitation style so as to accommodate people of both brain dominance groups.
RS 04	Added to awareness that people and their processes differ
RS 05	No response to questionnaire because I had already conducted an in depth interview with him
RS 06	I do make an effort to be conscious about the areas of development as indicated and incorporate it in the facilitation process where necessary
RS 07	None, I have not had any opportunity to facilitate since that day.
RS 08	It hasn't changed that way I facilitate, but it supported the way I see myself in the classroom.
RS 09	I am much more aware of why and how I facilitate and what type of effect I have on learners or students. I am also aware of why learners or students react the way they do.

It is clear from these responses that most of the facilitators only had surface reflection and a new awareness of their environment from the Mind Dynamix

Profile®. Even if they did reflect on their profile it had no significant impact on their style of facilitating learning. The evidence from this question and from other observations made in response to providing feedback that not all research subjects would respond in a similar way.

Question 4 responses were overwhelmingly that their lecturing style developed from intuition. This is a recognised style of reflection that draws on a feeling of what is right (Hinnet, 2002:7) as it draws on an emotional response that serves to compliment our knowledge and what we understand about our subject and which enables us to act in a situation. According to Schön (1987:24) this capacity has a great deal with the way in which we learn new skills, because once lecturers get to know the feeling of lecturing learning opportunities competently, they quickly learn to distinguish it from feelings of lecturing incompetently and then they become able to detect and correct their own errors. If intuition is a true style of reflection then it can be assumed that this has been done by lecturers in the past and that through the process of maturity they have developed some level of maturity and integration in their profiles to be flexible in their style of learning facilitation without them having to verbalise the skills (Schön 1987:24). Schön refers to this as knowing-in-action. However, the action research cycle is a continuous improvement of this flexibility, and this change was not apparent among lecturers (except RS 05 and RS 09).

Table 4.6 Indicates the research subject's responses to question 5

RS #	QUESTION 5 **If you felt the need to adapt your style of facilitating learning to become more "adept at your craft*", how would you do it?**
RS 01	Difficult but I will have to set up a chart of "do and don't" and that will most probably be very frustrating…I know andragogic and pedagogic and I am convinced that it adds quality to what you do
RS 02	WITHDREW FROM RESEARCH STUDY
RS 03	Through the use of more technology. Within my field it is often very difficult to explain the use and creation of document management systems etc. without explaining the programming and mark-up behind such databases.
RS 04	Solicit feedback on facilitation from respected facilitators in relevant field.
RS 05	NO RESPONSE TO QUESTIONNAIRE
RS 06	By ensuring more time for the aha moments, the spontaneous and less focus on meeting the deadline
RS 07	Not applicable.
RS 08	I need to find more innovate ways of facilitating learning – I tend to stick to things I know, and don't constantly look for new ways of facilitating.
RS 09	I would try to adapt to the learners needs as and when I observe them. By doing this I can "lead" them to find the answer as opposed to me telling them. Being interactive and "seeing" the student's potential becomes the focus. Helping them unleash that potential becomes the activity

In response to question 5 it became evident that for most of the lecturers this would be a very conscious phase of leaning to adapt their behaviour to achieve competence. In reading their responses there is a subjective use of terms such as "I need". I would try", without any clear form of action being evident in their responses. As the researcher it is evident that they are not

sure how to implement the Mind Dynamix Profile® consultant suggestions for areas of development. This could be a limitation of this research in that the research subjects did not have enough understanding of the use of the Mind Dynamix Profile® instrument itself.

In reading the responses to question 8: How would you describe the concept "whole brain lecturing"? it would appear that they have a good idea that this is a combination of gestalt and logical characteristics, but none of them indicate the need for flexibility in the process of implementing them.

In the questionnaire I did ask some questions that I thought were interesting, but on reflection appear irrelevant to the context of this research. They are questions 7 and 9 and have not been discussed as a result.

The following final chapter provides various conclusions about this research study and makes various suggestions on the adaptation of future research in this field.

CHAPTER 5
CONCLUSION

In this chapter I return to the main topic raised in this study and evaluate the extent to which I fulfilled my original intentions.

5.1 THE RESEARCH QUESTIONS

The title of this thesis is:

> *Implementing learning style flexibility for reflecting on change in facilitating learning in higher education.*

This framed the research question which focused on the Mind Dynamix Profile® as a tool for measuring learning style flexibility namely:

> *To what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education?*

I structured several critical questions that emanated from the research question and by answering them systematically I will draw conclusions about this research.

> What are the lecturers' Mind Dynamix Profiles®?
>
> How does the Mind Dynamix® Profile aid lecturers in developing professional competence?
>
> How does the Mind Dynamix Profile® influence the lecturer's style of facilitating learning?

How can the Mind Dynamix Profile® influence a lecturers' ability for reflection?

What is the link between reflective competence and change in practice of facilitating learning in higher education?

Is there a specific Mind Dynamix Profile® that reflects lecturers who are excellent at facilitating learning?

I will answer each of these questions separately

WHAT ARE THE LECTURERS' MIND DYNAMIX PROFILES®?

The majority of lecturers have mixed profiles, meaning that they gather information in a detailed, logical as well as holistic, creative manner. There was one exception of a lecturer with a blocked profile and all of these profiles also differed from my own profile which is a free flowing profile.

Traditionally in analysis a Mind Dynamix Profile® a blocked profile as demonstrated by RS 01 would indicate that this lecturer would have severe problems in terms of facilitating learning in the classroom. Observation shows however that he has been able to overcome many of the barriers and challenges posed to him in the lecturing environment. This is evidence of learning style flexibility that has occurred over a period of time and at this point maturity has allowed him to be a highly competent lecturer. An environment of stress however may still put him in the blocked profile state. In his responses to the profile he said that he "feels different from other people", which is a common characteristic among lecturers with this profile.

When observing other profiles they show a mixture of both gestalt and logic inputs, processing and outputs, as well as my own free flowing profile, it is

evident that every lecturer has strengths to his/her profile, but there are also areas of development in each profile.

HOW DOES THE MIND DYNAMIX® PROFILE AID LECTURERS IN DEVELOPING PROFESSIONAL COMPETENCE?

I conclude that the Mind Dynamix Profile® had success in aiding lecturers in developing their professional competence as lecturers who facilitate learning. The Mind Dynamix Profile ® claims to be genetic and through the process of maturity they have been able to manage their areas of strength to become areas of specialisation. In a similar way, through the management of areas of development they have assumed responsibility for overcoming the disadvantages that the profile attributes may have had. Evidence suggests that the lecturers in this research study are excellent at facilitating learning. However it would be dangerous to become complacent and not continue the cycle of lifelong learning and reflection.

The two research subjects (case study RS 05 and RS 09) that did show changes to their lecturing style provide evidence that the Mind Dynamix Profile® does aid lecturers in developing professional competence, but it requires more variables to be out in place other than knowledge of their Mind Dynamix Profile®. For RS 05 and RS 09 there was a desire to change their practice of facilitating learning, and motivation to do so. Added to this there was a trust relationship between the researcher and the lecturers and they felt comfortable to undergo several mentoring and coaching sessions. For some lecturers this could be seen as a sense of failure and incompetence.

Mentoring and coaching sessions provide for reflection on what aspects of lecturing need to be developed as well as the creativity to know how to change them. To be able to implement this effectively would take time because of the

repetition of behaviour to eliminate old lecturing patterns and habits. This takes discipline and endurance on the part of the lecturers. In the process they stand the risk of making mistakes and becoming stressed because new learning is taking place. This could have an effect on their performance in the classroom. Flexibility in lecturing styles only comes about after confidence and skill in the new learning opportunity have been achieved over and over again. According to De Jager (2009b:36) this is because a repatterning of nerve pathways needs to take place. In this process the nerve pathways that previously served only the dominant modalities not include the less dominant modalities and so information is able to flow efficiently between the dominant and the non-dominant modalities or sides of the body. At this point facilitating learning can occur with greater ease irrespective of the lecturer's dominant Mind Dynamix Profile®.

HOW DOES THE MIND DYNAMIX PROFILE® INFLUENCE THE LECTURER'S STYLE OF FACILITATING LEARNING?

The Mind Dynamix Profile® provides a one tool for facilitators to gain insight into *how* they facilitate learning especially when under stress. The lecturer, with knowledge of his/her own Mind Dynamix Profile®, is encouraged to be flexible and adaptable. However, it became obvious that this knowledge alone is not sufficient for the profile tool to influence their style of facilitating learning, and that other interventions also have to be included in the process. I believe that McNiff (2000) is correct in her assumption that lecturers do not actually want to think about how they should change their practice, when that current practice suits them well, particularly in the high stress environment where these lecturers find themselves. The impact of the Mind Dynamix Profile® on their learning facilitation was a direct question that I asked lecturers in the final questionnaire (question 4). In summarising the results I found that two lecturers made minor changes to their environment by changing the position of their desks, to release stress in their profiles. In further analysis of the final questionnaire it was apparent that for most

of the lecturers it would appear that the Mind Dynamix Profile® did not have a high impact on making changes in their facilitation of learning, but it did make them more mindful of the facilitation process, or else it supported the way that they already perceived their lecturing behaviour to be.

Only two lecturers, RS 05 and RS 09, embraced the action research process to enhance their style of facilitating learning. They took the concept of professional competence further than the other lecturers and I believe that they improved their own practice of facilitating learning because they felt empowered by the changes that they made to their own lecturing style. Professional competence encompasses more holistic skills than just being a learning mediator. Experience, values, the work environment, emotional and spiritual intelligence and personal values contributed to professional competence and would not have been identified as aspects in the Mind Dynamix Profile®. I could not identify any specific factors in their profile that would have caused this, but questioned whether a lecturer's ability for creativity would have allowed him/her to take the process further because he/she were able to design alternative behaviours. A limitation of this study was that the role of these values was not considered as variables that influence facilitating learning.

Other important factors to consider are that the Mind Dynamix Profile® does not measure the degree of intelligence, or the level of experience that a lecturer has. It also does not measure the level to which the lecturers have already overcome any barriers that may have prevented them from facilitating learning in the past. I do think that these also play a role in the lecturer's ability to deal with and interpret information in a constructivist way.

HOW CAN THE MIND DYNAMIX PROFILE® INFLUENCE A LECTURERS' ABILITY FOR REFLECTION?

According to Schön (1987:17) a lecturer cannot be taught what he needs to know, but he can be coached. In the case of this research, the lecturer needs to 'see' alternative behaviours for himself/herself, but this process can be guided by the researcher. In order for the researcher and the lecturer to achieve this the Mind Dynamix Profile® becomes a valuable instrument for coaching as well reflection. For adaptation and flexibility in lecturing the lecturer needs to draw on a balance of cognitive and logical skills as well as a level of creativity and artistry. In the Mind Dynamix Profile® these are referred to as logic and gestalt characteristics.

When a lecturer can do something competently he/she is able to execute a smooth sequence of activity without giving it too much thought. Schön (1987:26) referred to this as reflection-in-action. De Jager (2009b:29) refers to these dominances in the Mind Dynamix Profile® that ensure a variety of aptitude and skills in lecturers.

Then sometimes a lecturer's actions do not get executed smoothly, and fail to meet his/her expectations. In the Mind Dynamix Profile® this may be caused by a less dominant part of the Mind Dynamix Profile® and can be recognised as an area of development. When this happens he/she may then choose to brush the incident aside or he/she can reflect on the change in behaviour. Schön (1987:26).says that in this case the lecturer may reflect-on-action. The reflection has no link with the present action but serves to reshape what we are doing (reflection-in-action) or have done (reflection-in-action).

The Mind Dynamix Profile® provides the instrument to reflect on, as it describes benchmark behaviours for whole brain and whole body learning. Reflection gives rise to opportunities for new actions to be explored immediately and it can affirm that the changes and adaptations that we make are for the better (Schön, 1987:28). In other words, when a learning opportunity is unsuccessful, the lecturer should be reflecting on how he/she is going to change. Reflection determines *if* the lecturer will change his/her behaviour and the Mind Dynamix Profile determine *how* that change should best take place according to a variety of available options.

When designing learning opportunities the lecturer also needs to have a reflective conversation (Schön, 1987:42) with his materials and lecture design. This reflective conversation needs to include techniques of applying a variety of lecturing techniques to best accommodate a classroom of learners with a variety of learning styles, and in so doing showing learning/lecturing style flexibility. Even with meticulous planning the lecturer can still be confronted with unexpected situations and problems arising and he needs to know both how to manage them according to his strengths, as well as know how to find alternative whole brained approaches to resolving the situation. This requires experimentation and reflection-on-action.

Knowledge of the Mind Dynamix Profile® encourages self-directed learning, even if this is initially done with the initial help of a coach for guidance. Rogers (Schön, 1987:88) feels that in self-directed learning the “truth has been appropriated and assimilated in experience, and this cannot be communicated to another”.

From the above discussion it is evident that reflection and the Mind Dynamix Profile® are two separate entities. Reflection cannot occur in isolation, but requires a problem to reflect on. The Mind Dynamix Profile® provides such an instrument for reflection in terms of learning style flexibility.

Action research is itself a form of reflection as it allows lecturers to find their voice, and by deliberately making their thought and actions explicit. Evidence of this is seen after reflection takes place and they can formulate and verbalise their own areas of development.

WHAT IS THE LINK BETWEEN REFLECTIVE COMPETENCE AND CHANGE IN PRACTICE OF FACILITATING LEARNING IN HIGHER EDUCATION?

Reflective competence is when a lecturer demonstrates an ability to integrate or connect performances and decision-making with understanding and with an ability to adapt to change and unforeseen circumstances, and to explain the reason behind these adaptations.

This shows that there is a definite link between reflective competence and making changes to the practice of facilitating learning. Clearly, the greater the reflective competence, the greater change in the practice of facilitating learning that is brought about. In implementing the process of change the lecturer uses his/her capacity to strengthen the student community and becomes an asset to his/her environment. Two lecturers demonstrated this skill particularly well through continually asking me questions and reflecting on their practice of facilitating learning each time they stood in the classroom. During this process the role that I played in mentoring and coaching them was evident.

IS THERE A SPECIFIC MIND DYNAMIX PROFILE® THAT REFLECTS LECTURERS WHO ARE EXCELLENT AT FACILITATING LEARNING?

There is evidence in this research that there are specific Mind Dynamix Profile® dominances for a lecturer. There were four strong profile characteristics that were

evident among the research group. They had right ear dominance, were expressive, had a combination of logic and gestalt characteristic in processing information and displayed right hand dominance. These dominances demonstrate an ability to listen attentively, interact in a positive and pro-active manner, to communicate clearly and expressively and to demonstrate self-confidence and leadership. They also demonstrated skills in both cognitive and creative thinking. However, to be excellent at facilitating learning the lecturer is required not to focus on these dominances, but rather to "switch on" his/her areas of less dominance so that he/she can function in an integrated whole body and brain state.

5.2 LIMITATIONS OF THE RESEARCH

Lecturing practices are both complex and intricate, and to be simplified by the Mind Dynamix Profile® or reflective practice would be an over simplification of the reality of their role. Although this research study has contributed a novel approach to the process of reflecting on change in facilitating learning in higher education, it still needs to be seen in the context of a numerous of other variables. Lecturers are not only defined by their profile, but by a number of other variables as well. For instance they may have preferences for visual, auditory and kinaesthetic learning. In addition they function in a larger integrated context such as the integrated model initially discussed. Environmental factors and intelligence have also not been considered as variables in this study. A study of all of these variables would go beyond the scope of this research study. The sample size for this study was nine research participants. This is a limited sample and I believe that a larger sample size could also help validate the results.

5.2.1 THE ROLE OF MY OWN MIND DYNAMIX PROFILE® ON THE RESEARCH STUDY

My own Mind Dynamix Profile® may have influenced my interpretation of the data and the research experience. Certain of the dominances of my profile were challenges in this research process. Initially the most difficult was actually doing action research. My values do not allow me to focus on myself but to be of service to others. In doing action research I found the use of the term 'I' exceptionally difficult because it broke the traditionalist views of a researcher. Being right foot dominant I find it difficult not to be a conformist. Now at the end of the journey I can reflect and admit that I have adapted and the richer for it.

I do recognise that development has taken place in my own professional competence, parallel to that of my fellow lecturers. I have deepened my understanding of the Mind Dynamix Profile® and see that it may be useful in informing competence in lecturers. Most important of all I recognise that there is not one Mind Dynamix Profile® that is superior to any other. Its role is to identify each person's area of specialisation and to use those areas as assets in the professions that we find ourselves.

5.3 HAVE I ACHIEVED REFLECTIVE COMPETENCE?

Reflective competence is a demonstration of the ability to integrate or connect performances and decision-making with understanding and with an ability to adapt to change and unforeseen circumstances and to explain the reason behind these adaptations (Slabbert, 2003:2). The literature generally stated the reflective competence was severely lacking in the context of the South African Education

system. Part of my growth in this research study would then imply that I would have to determine if I have reflective competence.

In addition, in Chapter 1 I referred to professional development is seen as the professional growth a lecturer undergoes as a result of gaining increased experiences and through examining his or her lecturing systematically. In this process the lecturer is conceived as a reflective practitioner in a collaborative process.

Through the use of reflective tools I have undergone a number of phases of reflection and professional development. In designing the research study I began to learn about research itself, and only after several months did I mange to come up with a competent design where my supervisor and I reached a point of convergence. It was only at the point where I was familiar with the research design and instruments that I reached a point of being conversant and it began to take the reciprocal form of reflection-in-action, in dealing with the numerous conflicts and problems that arose. Schön (1987:164) eloquently states this as a vicious cycle that occurs as the learner (in this case the researcher) undergoes in order to learns skills and also to reflect in a continual participatory dialogue.
The research cycle below demonstrates the action research cycle that determines that I achieved reflective competence.

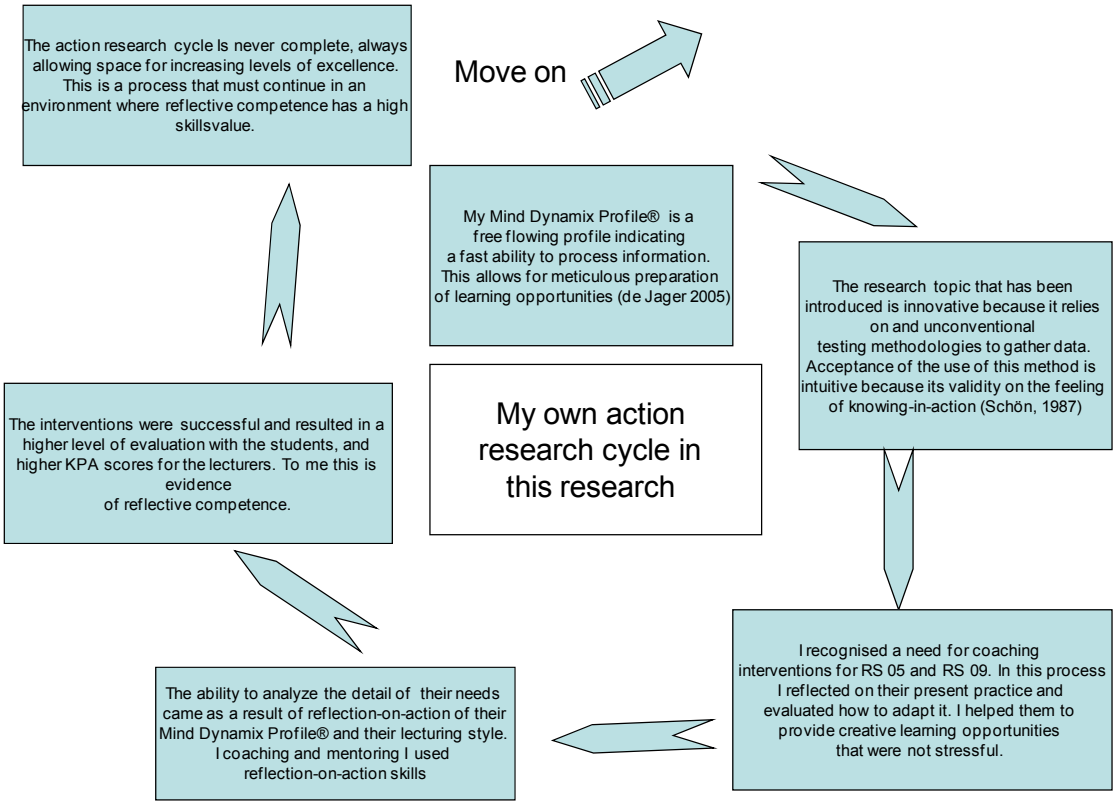


Figure 5.1 The researcher's action research cycle demonstrating reflective skills

5.4 CONCLUSION

In summarising the evidence to the initial research question

> *To what extent can the Mind Dynamix Profile® inform the practice of reflecting on change in facilitating learning in higher education?*

I would respond that the Mind Dynamix Profile® is an instrument that allows for learning style flexibility and in using the instrument correctly it allows for definite change of facilitation strategies in higher education. Knowledge provided by

profiling with the Mind Dynamix Profile® may sensitise lecturers to individual differences in learning styles and therefore encourage them to experiment with different facilitation strategies.

But the cycle of reflection is not concluded at this point. As Tolstoy says (McNiff, 2000:295) reaching the point of perfectibility and development are endless.

REFERENCES

Abdal-Haqq, I. 1998. *Constructivism in teacher education: considerations for those who would link practice to theory.* [Online] Available: http://www.ericdigests.org/1999-3/theory.htm [18 August 2009].

Bacal, R. 2003. The role of the facilitator: Understanding what facilitators really do. [Online] Available: http://www.work911.com/articles/facil.htm [10 March 2009].

Bester, E.D. 2001. *The potential link between brain dominance and temperament, learning and personality styles: a PPL perspective,* MPhil dissertation. Johannesburg:RAU.

Betz, M.K. 2006. *Solo and social learning in online courses: implications for information processing theory.* [Online] Available: http://www.itdl.org/Journal/feb_06/article03.htm [6 September 2006].

Boody, R.M. 2008. Teacher reflection as teacher change, and teacher change as moral response. *Education,* 128 (3) p.498-506.

Boud, D., Keogh, R. and Walker, D.(Eds). 1985. *Reflection: turning experience into learning.* London: Kogan Page.

Boyatzis, R.E., Cowen, S.S. and Kolb, D. 1995. *Innovation in professional education.* San Francisco:Jossey-Bass Publishers.

Brockbank, A. and McGill, I. 1998. *Facilitating reflective learning in higher education.* Buckingham:Society for Research into Higher Education.

Broffenbrenner, U. 1979. *The ecology of human development: Experiments by nature and design.* Cambridge, MA:Harvard University Press.

Brown, N. 2004. What makes a good education educator? The relevance of meta programmes. *Assessment and Evaluation in Higher Education.* [Online]. 29 (5) p.515-533. Available: http://www.ebscohost.com/ [18 October 2009].

Buzan, T. 2001. *The power of creative intelligence.* London:Thorsons.

Coffield, F.C., Moseley, D.V.M., Hall, E. and Eccelstone, K. 2004. *Learning styles and pedagogy in post-16 learning: Findings of a systematic and critical review of learning style models.* London:Learning and Research Skills Centre.

Davies, C. nd. *Kolb learning cycle tutorial: static version*. [Online] Available: http://www.ldu.leeds.ac.uk/ldu/sddu_multimedia/kolb/static_version.php [28 August 2009].

Dalziel, T. and Gourvenec, S. 2003. *Partnerships in outcomes based education.* [Online] Available: http://www.cofs.uwa.edu.au [27 April 2009].

Department of Education, 2006. *The national policy framework for teacher education and development in South Africa*. [Online] Available: http://www.info.gov.za/view/DownloadFileAction?id=70084 [13 September 2008].

De Jager, M. 2001. *Brain gym for all.* Cape Town:Human and Rousseau.

De Jager, M. 2003. *Mind dynamics.* Cape Town:Human and Rousseau.

De Jager, M. 2005. *Mind Dynamix Profile® Course - Survival Strategies*. Johannesburg:The BG ConneXion (Pty) Ltd.

De Jager, M. 2006. *Mind moves: removing barriers to learning.* Johannesburg:The BG ConneXion (Pty) Ltd.

De Jager, M. 2008. *Discussion on Mind Dynamix Profile® tables. (Personal communication, 16 February 2008).*

De Jager, M. 2009a. *Interpreting lecturers' profiles.* (Personal communication, 20 July 2009).

De Jager, M. 2009b. *Mind moves: moves that mend the mind.* Johannesburg: Mind Moves Institute.

Dennison, P. 1981. *Switching on: The whole brain answer to dyslexia.* Ventura:Edu-Kinesthetics, Inc.

Dewey, J. 1933. *How we think: restatement of the relation of reflective thinking to the educative process.* New York:Heath.

Dewey, J. 1916. *Democracy and education: An introduction to the philosophy of education.* New York:The Macmillan Company.

Ebersole, G. 2007. *Eight key characteristics for a strategic planning facilitator.* [Online] Available: http://ezinearticles.com/?Eight-key-Characteristics-For-A-Strategic-Planning –Facilitator&id=489830 [10 March 2009].

Ebersöhn, L. and Eloff, I. 2006. *An asset-focused life-skills approach.* Pretoria:VanSchaik.

Eikenberry, K. 2007. *Self reflection leads to greater success*.[Online] Available: http://www.sideroad.com/Leadership/self-reflection.html [23 May 2008].

Ellison, L. 1993. *Seeing with magic glasses: a teacher's view from the front line of the learning revolution.* Arlington, Va:Great Ocean Publishers.

Evans, C. and Waring, M. 2006. Towards inclusive teacher education: sensitising individuals to how they learn. *Educational psychology,* 26(4), p.499-518.

Fardon, M. 2003. Internet streaming of lectures: a matter of style, in *Book of abstracts: abstracts of papers included on the Proceedings CDROM: Educause in Australasia, 6–9 May 2003, University of Western Australia, Adelaide*. [Online] Available: http://www.caudit.edu.au/educauseaustralasia/2003/EDUCAUSE/PDF/AUTHOR/ED031019.PDF [20 August, 2009].

Feiman-Nemser, S. 1990. Teacher preparation: structural and conceptual alternatives, in W.T. Houston (Ed.), *Handbook of research on teacher education*, New York: McMillan.

Felder, R. 1996. Matters of style. *ASEE Prism* 6(4),p.18-23.

Gagne, R.M. 1985. *The conditions of learning and theory of instruction.* 4th ed. New York:Holt, Rinehart & Winston.

Gardner, H. 1999. *Intelligence reframed: multiple intelligences for the 21st century*. New York:Basic Books.

Gardner, H. 2004. *Changing minds: the art and science of changing our own and other people's minds*. Boston:Harvard Business School Press.

Gibble,J.L. nd *Curriculum development and instructional design* [Online] Available: http://www2.yk.psu.edu/~jlg18/506/r03_written.PDF [28 December 2008].

Glatthorn, A. 1995. Teacher development, in L.W. Anderson (Ed.). *International encyclopedia of teaching and teacher education.* 2nd ed. Oxford:Pergamon Press.

Hannaford, C. 1995. *Smart moves: why learning is not all in your head.* Arlington, Va.:Great Ocean Publishers.

Hannaford, C.1997. *The dominance factor: how knowing your dominant eye, ear, brain, hand and foot can improve your learning.* Arlington, Va.:Great Ocean Publishers.

Hannaford, C. 2005. *Smart moves: why learning is not all in your head.* 2nd ed. Salt Lake City, Utah:Great River Books.

Harley, K., Barasa, F., Bertram, C., Mattson,E. and Pillay, S. 2000. The real and the ideal: teacher roles and competences in South African policy and practice. *International Journal of Educational Development,* 20(4),p.287-304.

Hatton, N. and Smith, D.1995. Reflection in teacher education: towards definition and implementation*, Teaching and Teacher Education*, 11(1),p.33-49.

Hawkins, D.R. 2002. *Power vs force: the hidden determinants of human behaviour.* Carlsbad, California:Hay House Publishers.

Herrmann, N. 1993. *The creative brain.* USA:Arcata Graphics.

Herrmann, N. 1996. *The whole brain business book.* USA:McGraw-Hill.

Hillberg, R.S. and Tharp, R.G. 2002. *Theoretical perspectives, research findings, and classroom implications of the learning styles of American Indian and Alaska Native students* [Online] Available: http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1a/56/18.pdf [19 May 2008].

Hinett, K. 2002. *Improving learning through reflection.* United Kingdom:The Higher Education Academy.

Hirsh, S.K. and Kummerow, J. 1989. *Life types: understand yourself and make the most of who you are.* New York:Warner Books.

Honey, P. and Mumford, A. 1982. *The manual of learning styles.* Berkshire: Peter Honey, Maidenhead.

Houghton, W. 2004. *Engineering subject centre guide: learning and teaching theory for engineering academics.* [Online] Available: http://www.engsc.ac.uk/downloads/scholarart/theory.pdf [12 August 2008].

Hugo, W. 2005. Something extra: the moment of good teaching, *Journal of Education,* (36) [Online] Available: http://www.ukzn.ac.za/joe/JoEPDFs/joe%2036%20hugo%202.pdf [22 May 2008].

Jarvis, P. 2002. *The theory and practice of teaching.* London:Kogan Page.

Jensen, E. 1994. *The learning brain.* San Diego:CA.Turning Point.

Jensen, E. 1995. *Brain-based learning and teaching,* Johannesburg: Lead the Field Africa.

Jessop, T. 1997. Towards *a grounded theory of teacher development: a study of the narratives of rural primary teachers in Kwa-Zulu Natal.* PhD thesis, King Alfred's University College, Winchester.

Jonassen, D.H. 1997. Instructional design models for well-structured and ill-structured problem-solving learning outcomes. *Educational Technology Research and Development,* 45(1),p.65–94.

Jones, M. 2004. Mentors' perceptions of their roles in school-based teacher training in England and Germany, in T. Wragg (Ed.), *The RoutledgeFalmer reader in teaching and learning.* London:Routledge.

Kolb, D.A. 1984. *Experiential learning: experience as the source of learning and development.* New Jersey:Prentice Hall.

Kolb, D.A. and Fry, R. 1975. Toward an applied theory of experiential learning, in C. Cooper (Ed.), Theories *of group process*. London:John Wiley.

Kolb, D.A., Rubin, I.M. and McIntyre, J.M. 1979. *Organizational psychology: an experiential approach.* New Jersey:Prentice-Hall.

King, S.E. 2008. Inspiring critical reflection in pre-service teachers. *Physical Educator,* 65(1),p.21-29.

Lewis, B. 2009. *The value of self reflection: any time of year, it's important to self reflect*: *examining what worked and what failed in the past can lead to future triumphs*. [Online] Available: http://k6educators.about.com/od/professionaldevelopment/a/self_reflection.htm [23 May 2008]

Lewis, G. 2000. *The mentoring manager: strategies for fostering talent and spreading knowledge*. London:Prentice Hall.

Lovelace, M.K. 2005. Meta-analysis of experimental research based on the Dunn and Dunn model. *The Journal of Educational Research,* 98(3), p.176-183.

Lumsdaine, E. and Lumsdaine, M. 1995. *Creative problem solving: thinking skills for a changing world.* New York:McGraw-Hill.

Lygo-Baker, S. and Hatzipanagos, S. 2007. Beyond peer review: investigating practitioner perceptions of teaching observations undertaken by academic developers. *International Journal of Learning,* 14(8), p.99-105.

MacKinnon, A. and Scarff-Seatter, C. 1997. Constructivism: contradictions and confusion in teacher education, in V. Richardson (Ed.), *Constructivist teacher education: building new understandings*. Washington, DC:Falmer Press.

MacLean, P.D. 1990. *The triune brain in evolution: role in paleocerebral functions.* New York: Plenum Press.

McNiff, J. 2000. *Action research in organisations*. London:Routledge.

McNiff, J. and Whitehead, J. 2002. *Action research Principals and Practice;* 2nd ed. New York: RoutledgeFalmer.

McNiff, J. and Whitehead, J. 2006. *All you need to know about action research,* London:Sage Publications.

Malan, M.M. 1998. *Learning styles: Implications for optimizing teaching and learning.* University of Stellenbosch:MEd thesis.

Merickel, M.L. 1998. *Integration of the disciplines: levels of reflectivity.* [Online] Available: http://oregonstate.edu/instruction/ed555/zone1/van.htm [30 June 2008].

Moreo, J. and Carmichael, F. 2002. *Conquer the brain drain: 52 creative ways to pump up productivity.* Shawnee Mission, KS.:National Press Publications.

Morreim, H. 1983. Three concepts of patient competence, *Theoretical Medicine and Bioethics,* (4) 3, 231-251.

Mouton, J. 2008. *How to succeed in your master's and doctoral studies.* Pretoria:Van Schaik.

Myers, I.B. and McCaulley, M.H. 1985. *Manual: a guide to the development and use of the Myers-Briggs Type Indicator,* 2nd ed, Palo Alto, CA:Consulting Psychologists Press.

NUS. nd. *Lectures: lecturing: styles of lecturing*. [Online] Available: http://www.cdtl.nus.edu.sg/handbook/lecture/styles.htm [20 August 2009].

Osland, J.S., Kolb, D.A. and Rubin, I.M. 2001. *Organizational behaviour: an experimental approach.* New Jersey:Prentice-Hall.

Oswald, R.M. and Kroeger, O. 1988. *Personality type and religious leadership.* Washington, D.C.:Alban Institute.

Price, B. 2005. *Personal Communication on Mind Dynamix Profile®* (Communication 2005)

Promislow, S. 2005. *Making the Brain Body Connection.* Canada:Kinetic Publishing Corporation.

Prosser, M. and Trigwell, K. 1999. *Understanding learning and teaching: the experience in higher education*. Buckingham:The Society for Research into Higher Education.

Regenesys Management. 2009. *Design and develop outcomes based assessments.* Woodmead, Sandton:Regenesys Management.

Robbins, A. 2009. *Business mastery: Lead your business effectively, efficiently and profitably to thrive in any economic time.* San Diego:Robbins Research International.

Rochford, R.A. and Mangino, C. 2006. Are you teaching the way your students Learn? *Radical Psychology,* (8)1, Spring. [Online] Available: http://radicalpedagogy.icaap.org/content/issue8_1/rochford.html [14 March 2007].

Schön, D. 1983. *The reflective practitioner: how professionals think in action*. London:Temple Smith.

Schön, D. 1987. *Educating the reflective practitioner.* , San Francisco: Jossey-Bass.

Schmeck, R.R. (Ed.) 1988. *Learning strategies and learning styles.* New York:Plenum Press.

Slabbert, J.A. 2003. *Facilitating learning: seven educator roles in one*. [workbook] Pretoria: University of Pretoria.

Smith, D.L. and Lovat, T.J. 2003.*Curriculum:Action on reflection.* 4th ed, Australia: Social Science Press.

South Africa. Department of Education. 2000. *Norms and Standards for Educators.* Pretoria:The Department.

Smith, M.K. 2001. *Donald Schön: learning, reflection and change', the encyclopedia of informal education.* [Online] Available: www.infed.org. [30 June 2008].

Sternberg, R. and Zhang, L. 2001. *Perspectives on thinking, learning and cognitive styles.* New Jersey:Lawrence Erlbaum Associates, Inc.

Swinton, L. 2006. *Kolb's Learning Style Inventory and Kolb's Learning Cycle explained: no fluff, no filler, just facts*. [Online] Available: http://www.mftrou.com/kolb-learning-style-inventory.html [26 April 2009].

Swanepoel, M. 2006. *Personal Communication on Mind Dynamix Profile®* (Communication 2005)

Taggart, L. and Wilson, A.P. 2005. *Promoting reflective thinking in teachers: 50 action strategies.* Thousand Oaks:CA;Corwin Press.

Tennant, M. 1997. *Psychology and adult learning,* 2nd ed, London**:**Routledge**.**

Thiagarajan, S. 2005. *Thiagi's interactive lectures.* Alexandria, VA:ASTD Press.

Villegas-Reimers, E. 2003. *Teacher professional development: an international review of the literature*. [Online] Available: http://unesdoc.unesco.org/images/0013/001330/133010e.pdf [17 April 2008].

Wilkinson, M. 1997. *Target characteristics for facilitator candidates.* [Online] Available: http://www.thefacilitator.com/htdocs/394_wilk.html [10 March 2009].

Wolfe, D.M. and Kolb, D.A. 1984. Career development, personal growth and experiential learning, in D.A. Kolb, I.M. Rubin & J.M. McIntyre (Ed), *Organizational psychology: readings on human behaviour in organizations,* 4th ed, Englewood Cliffs:Prentice-Hall.

Wolffe, R.J. and McMullen, D.W. 1996. The constructivist connection: linking theory, best practice, and technology. *Journal of Computing in Teacher Education*. (12) 2p.25-28.

Zhang, L. 2001. Approaches and thinking styles in learning. *Journal of Psychology.* 135(5),p.547-561.

Zuber-Skerritt, O. 2001, *Action research as the basis for teaching, learning and professional development* [workshop]. Pretoria:Technikon Pretoria.

APPENDIX A

LECTURER'S MIND DYNAMIX PROFILES®

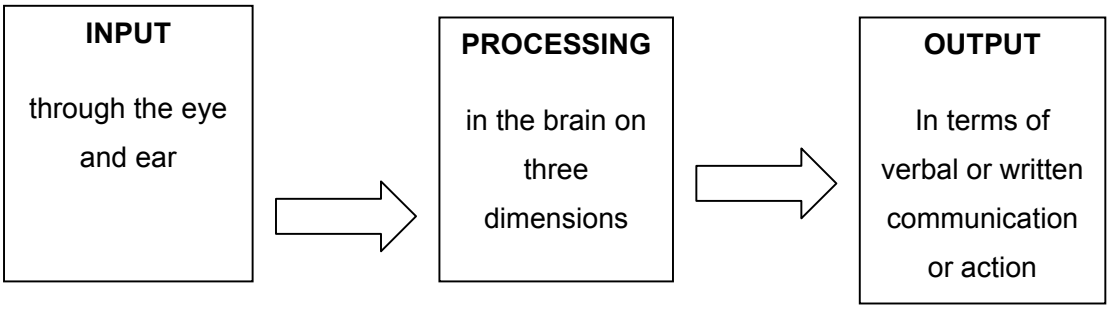
PROFILE SUMMARY: RS 01

March 2009

Your dominance profile reads as follows:

Input	Eye:	right	(Logical/detailed processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	right	(Gestalt/creative processing)
		top	(Cognitive)
		front	(Expressive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	right	(Logical/detailed processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your right eye is dominant	
You display both strong visual and kinesthetic tendencies in you profile. This means that you basically develop the philosophy of "I want to show them and I want them to feel it".	
You have a high level of control over what you read and therefore read analytically, searching for detail.	You generally read to look for what really *is* there as opposed to placing any interpretation onto what you read.
You read easily with a left to right reading direction. This means that you like material	You may tend to read and deliberately look for mistakes, and want to improve

to be neat, accurate and have a strong sense of what is correct and incorrect.	standards and quality all the time.
Listening skills Your right ear is dominant	
Your listening style is similar to the manner in which you gather visual information.	You seem task yourself with finding fault with what you hear. If you find a mistake you want to fix it and then you feel that you are closer to perfection.
	The detail of information that you gather from people must be consistent because you need solid information for processing.
Lesson structure	
You have a dynamic facilitating style and match it to what suits the audience. You are not a repetitive trainer but a true facilitator of understanding of material content.	You do use the same manuals repeatedly but probably find that no two courses will ever be taught in the same manner. Your lecturing style is determined by the information that you have in your head at that stage. This may result in inconsistent quality control to your facilitation of interventions.
You are a clear designer, conceptualise and doer when it comes to being in the classroom. You are able to do this because you draw your information from the left brain which has perfectionist tendencies allowing you to do everything well.	You are “wired” with impatience to move and improve, but you are not a maintainer.
Your content is factually based and your skill lies with flowing with the group yet still providing relevant content while standing in front of the classroom.	Your strong dependence on combining group and content means that you cannot plan your lessons in detail as your plans continually vary and change.
You have strong people skills and are	

flexible with the way in which you reach your outcome, but you do reach this outcome in the end. Your powerbase lies in your experience.	
Your unconscious way of facilitating allows you to thrive on the challenge and a sense of the unknown.	This style of facilitation can lead to students being frustrated because they may need to navigate their way around a manual. You need to inform them where they are in the manual. Students also need to know how you are going to assess them.
Teaching administration	
You work from a solid base with a lot of detail and this gives you credibility.	Others may struggle to see your reasoning and logic behind decisions that you make so try and provide some structure behind your reasoning.
Information Processing You use mainly the upper right part of your brain (cognitive creative), with a high level of expression.	
Your profile shows a stunning a combination of an ability to combine logic with creative thought processes allowing you to be both creative and innovative.	
You draw from your visual and auditory input to think creatively. Your right brain wants to use the information to improve the quality of material so that you can adapt it, have fun and present it in new and different ways.	You love to be challenged and to “stir” because the confrontation gives you pleasure.
Your input of information is detailed and focused, and your right brain them allows you to look at it from different angles. As a	

result you are a “thought spinner”, with an innate flexibility and a strong sense of forgiveness.	
You love to have obstacles in your way because you will always find a way around them even if there is confrontation in the situation. You do not become disheartened by this and it is very difficult to “kill your spirit”. This is an advantage to your organisation because you are able to move it forward with your style of questioning and analysis.	
Your right, front, and cognitive dominance combination allows you be progressive and to move forward.	You are “wired” with impatience to move and improve, but you are not a maintainer.
Body language	
Your are highly emotional	You tend you put on a faced so that nobody will see you intensity of feeling.
Additional information	
	When you are stressed all of your input and output functions are blocked. You even loose your ability to speak and be expressive. The only way to get out of this state is to relax.

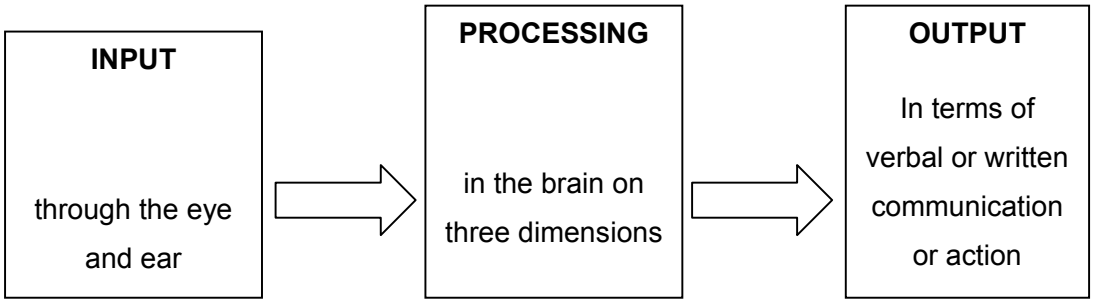
PROFILE SUMMARY: RS 02

March 2009

Your dominance profile reads as follows:

Input	Eye:	left	(Logical/detailed processing)
	Ear:	right	(Gestalt/creative processing)
Processing	Brain:	right	(Gestalt/creative processing)
		top	(Cognitive)
		front	(Expressive)
Output	Hand:	right	(Gestalt/creative processing)
	Foot:	right	(Gestalt/creative processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Classroom image	
	When lecturing you find it difficult to draw boundaries and easily go with the flow that the learners determine. It is important that you as the facilitator draw boundaries for self-protection and to guide the learning process.
You come across as being a "tough cookie" because of your ability to be hard+tough+logical.	Learners are unaware of the type of emotion that you frequently put into from your input process to get to this image that you portray.
Visual information Your left eye is dominant	

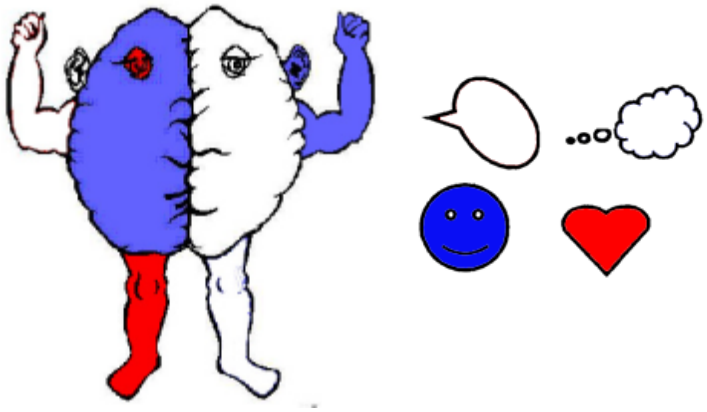
You have a creative eye and drawing feeds your emotions and releases creative energy in the classroom.	Do not teach using PowerPoint presentations.
You write notes (flipcharts) using headings, bullets and pictures making them easy to read from a distance.	You find that you need to put a lot of effort into reading lecturing material, or anything that requires reams of information.
	Your left eye dominance creates a problem for you with regard to marking as it often not accurate and leaves out detail and facts.
Your working environment is important to you as you have a love of beauty. It is important to face a window in the office. What you see affects you.	Your present office space where you face a wall narrows your mind and the open office space that you have is distracting to you.
Body language	
You see with a holistic perception. You read the classroom situation and mood well and can adjust to your audience accordingly. You see learners and immediately develop a report with them.	
Listening skills Your right ear is dominant	
Both your ears are strong, displaying listening as a dominant learning style for you. As a result you listen with detail, but can also easily place information in context, making conversations with others easy.	Your right ear is stronger that your left ear and you can at times make people feel hurt by your response to them.
You display a good ability for television presentations or as a facilitator for distance learning programmes because you are very visual as well as auditory.	
You like to be told information and easily come up with your own plan for lesson presentation.	You don't like to gather information through extensive reading and as a result will not teach according to a manual.
Lesson structure	
You facilitate learning rather than present a	Unable to follow a lesson structure and detail

traditional lecture. This allows you to create and deliver information that is specific to the needs of the audience, making the learning process alive.	according to the manual that you may need to follow.
Teaching administration	
Your style is to deliver and output and meet the learning outcomes of the lesson. The flow of the class will determine how you teach.	You do not plan your lessons. You need environmental structures that support your teaching style, which often are not present in your present teaching environment.
	You find structure and control of administrative processes difficult.
	Your manager requires measurable outputs from you and this creates tension between you. Try to write reports because otherwise it becomes a hurdle to the facilitating part which you love.
Information Processing You use mainly the upper right part of your brain (cognitive creative), with a high level of expression.	
You can always make a plan because you understand a concept and use it in your own way so that it works with the students.	May deviate from the topic, but you do reach your outcome.
You have a passion to tell the students *why* processes happen rather than *what* they are.	
Your style is a very contextual one because you are able to see what they can become with the knowledge that you will share.	Some students are unable to see things from your point of view and sometimes you need to slow down a bit for them to catch up.
Facilitate well with students who already have a grounding in the knowledge that you are presenting. You do well on a level of managers and upwards, who think abstractly, because challenges bring out the best in your skill.	You find it a disadvantage to facilitate on the lower NQF level courses because of the detailed input you need to put in. You do not like to have to repeat information to students when they don't understand
When you present information you talk solidly in a structure manner which is supported by your creativity.	To do this differently you could use more lateral thinking and use a greater variety of examples to ground your facts.

Because you are so expressive you get energy from your interaction with students.	On the rare occasion, when you are stressed your left brain shuts down and you become quiet.
You see your role as one to inspire and motivate others	
Additional information	
	Quiet times for you are spiritual times and they refuel you so that you can give to others and inspire them again. This satisfies your need to influence others.

PROFILE SUMMARY: RS 03

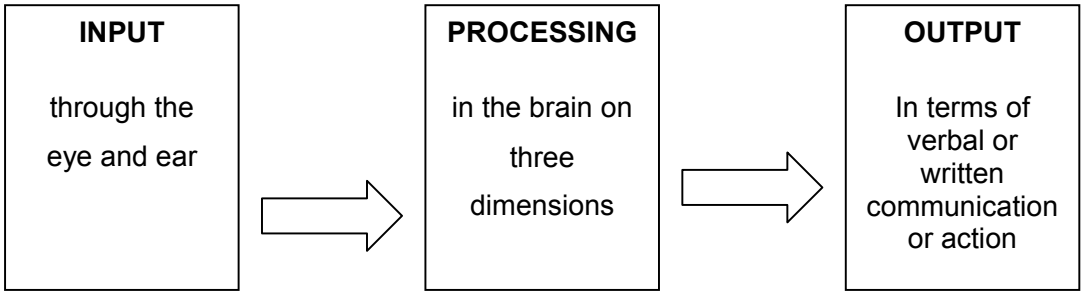
March 2009



Your dominance profile reads as follows:

Input	Eye:	left	(Gestalt/creative processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	left	(Logical/detailed processing)
		right	Functionally strong -
		bottom	(Gestalt/creative processing)
		back	(Emotional)
			(Receptive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	left	(Gestalt/creative processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your left eye is dominant	
Your visual input is creative. This draws a direct link to your right brain hemisphere which shows extremely strong functional strength. This functional strengths indicates a very high level of brain integration allowing you draw equally well	Your creative eye naturally prefers to read from right to left at time causing inaccuracies to occur in what you write. Your right eye may take dominance at these times when you attempt to proofread material but you may tire very easily.

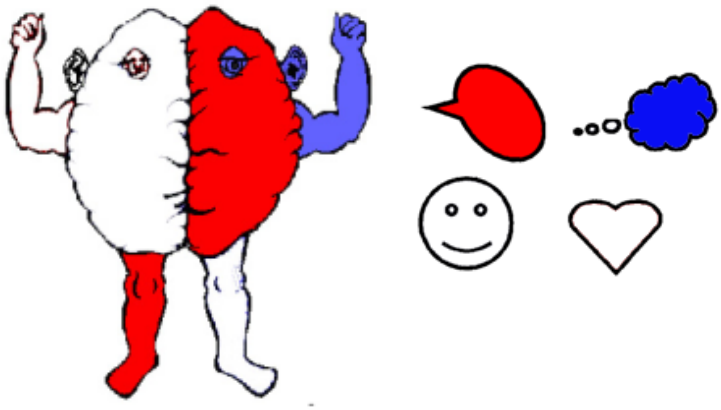
from either side of the brain.	
You are able to see things in a holistic perspective which forms an important part of holistic future planning in your department.	You can view things from many different angles making you see everybody's perspective when planning, making your choices difficult at times.
Listening skills Your right ear is dominant	
Your auditory skill is your dominant method of gathering information. Your auditory input is logical and draws on the strength of your dominant left brain hemisphere.	
When you listen you take in a lot of facts and detail. To you things are clear cut, but not relationships with people unless they provide you with consistent information.	You may find it difficult to work with people because you may need more structured and reliable information to make decisions about people.
Lesson structure	
When you explain information you have compassion for others because you can see them from many sides and are able to analyse their point of view. You have a high level of emotional intelligence because of your balance between logic from the left brain hemisphere and creativity and emotion from the right brain hemisphere.	
You facilitate in a structured way and make use of the manual as a structure on which to design your lessons. This tells them	You may lack the spontaneity that is required when going with the flow of the

what they should know. You then use you skills to tell them *why* they should know the information.	classroom and the student's needs.
Teaching administration	
Your strength lies in the ability to design materials that are associated with the learning process because although you have strong language skills you are not expressive – so as a result you can almost "teach silently".	Your profile indicates that you would undergo too much stress if you facilitate lessons on a regular basis because although you have strong language skills you are not an extrovert.
Information Processing You use mainly the upper right part of your brain (cognitive creative), with a high level of expression.	
You have a rare profile with a lot of passion that is based on a very solid intellectual mind.	Your strength and combination of passion can be intimidating to those around you.
	Your profile indicates that you have a great need for control of your environment and situations.
Body language/team dynamics	
You have a strong, impulsive flair for innovation. This is a skill which cannot be taught and sets you apart from most facilitators. This innovation drives you in a compulsive manner where you feel obligated to write. It is only when you r left brain hemisphere logical reasoning becomes to overpowering and strong that	You need time alone to recharge yourself. Being passive is good for you.

you may override your impulsivity.	
You are easily able to read other people's body language and gain insight into their behaviour from this.	Sitting in an open plan office is not a good space for you because you see everything around you which can be distracting.
You have a caring nature with a spine of steel.	
Additional information	
You can design material, analyse content, and write both creatively and academically.	You biggest disadvantage is perhaps that you potentially good at everything that you attempt. This could create stress as you cannot decide what you actually would like to do.
Beauty is extremely important to you and a way to your heart.	In an office situation you need to be able to see out of the window so that you can link with the environment as well as to be able to strengthen your right eye vision.
	You need to recharge yourself and art is good for you as it awakens your more sensitive side to your character. You need to nurture and look after yourself. In these times you will also link to a level of spiritually.

PROFILE SUMMARY: RS 04

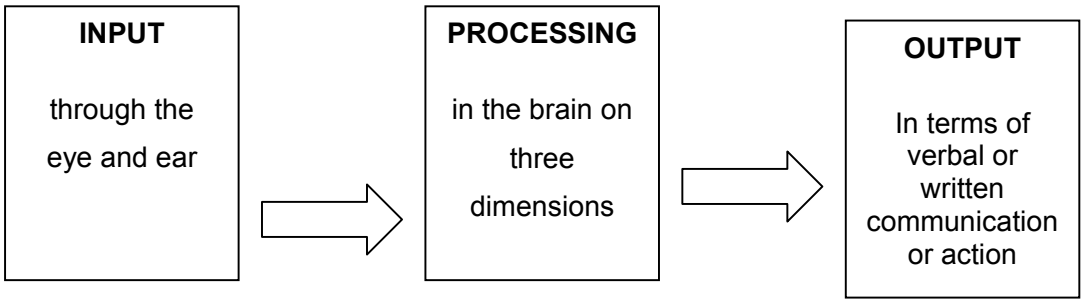
March 2009



Your dominance profile reads as follows:

Input	Eye:	right	(Logical/detailed processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	right	(Gestalt/creative processing)
		top	(Cognitive)
		front	(Expressive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	left	(Gestalt/creative processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and the facilitation of learning:	**Your profile displays the following *areas of development* with regard to lecturing and the facilitation of learning:**
Visual information Your right eye is dominant	
You have an exceptionally strong visual perception and are extremely visually creative.	You process lot of detail in what you see. This may mean that you may not be able to put visual detail into the correct context that it belongs in.
Your vision is critical to you for identifying potential problems in any given situation.	

Listening skills Your right ear is dominant	
You listen to people intensely to identify consistency of information and to gather detailed information. Both your visual and auditory input make you want to be proactive in problem solving.	Your hearing is objective and logical. As a result you may not be tuned into the emotion of what people are saying to you.
Lesson structure	
You possess the perfect combination of skills to become a designer of some form. This is because you easily come up with plans and systems on an abstract level.	This may be frustrating for slower learners as you may chose not to even discuss the small, finer details of the design processes, which could result in them feeling left behind.
	You thought process and creativity make lecturing a stifling environment for you and if this is the route you want to pursue you should consider doing guest lecturing/facilitating on a consultation basis.
Teaching administration	
Once you have the required information that you need, you may like to withdraw and work on your own.	You may become extremely frustrated by the need for progress reports before the task is completed.
If may have felt misunderstood by others in the past so you feel the need to move away from the situation. Physical movement such as walking is also important because this movement helps you move from the context of the situation to the next step.	You do rather wish that people would trust you around the delivery.
	You feel that your performance should be measured on your output and not on your input.
Information Processing You use mainly the upper right part of your brain (cognitive creative), with a high level of	

expression.	
You have an enormous amount of logic in your profile which when combined with the detail of information in your input phase result in the information coming alive for you.	
You probably find the pursuit of logic a satisfying way of gathering information because you identify the core of the problems and research the solution yourself. To solve problems you need to research the source material.	Your main goal in gathering information is to be proactive about a solution because you are output driven. You are a trouble-shooter, and don't ask for permission to behave in this way.
You input information is transferred to the left brain hemisphere in the form of words.	When you solve problems you would possibly rather be active doing tasks then thinking in words which slow you down. If you slow down you could slow the problem solving processes down completely. Interruptions can frustrate you intensely and you work best when you are alone in designing.
You may have a need for stimulation and continual change.	Being limited to an office inhibits your creativity. Often you need to take a step back into your thought processes to continually release creativity flow.
You solve many problems unconsciously and frequently in your sleep.	The busier you are the less you are capable of solving problems.
Body language/team dynamics	
You have un unpredictable power base because you can always "pull the rabbit from the hat". In other words you can always come up with a solution to a problem.	People in a team do not know where they stand with you because they find it difficult to predict your behaviour and responses.

Additional information	
	Generally you are not a person who should work in the corporate environment and would work better as a consultant because of the freedom of problem solving space that this provides for you.
Stress never really dominates you as you never really shut down your creativity and output processes.	

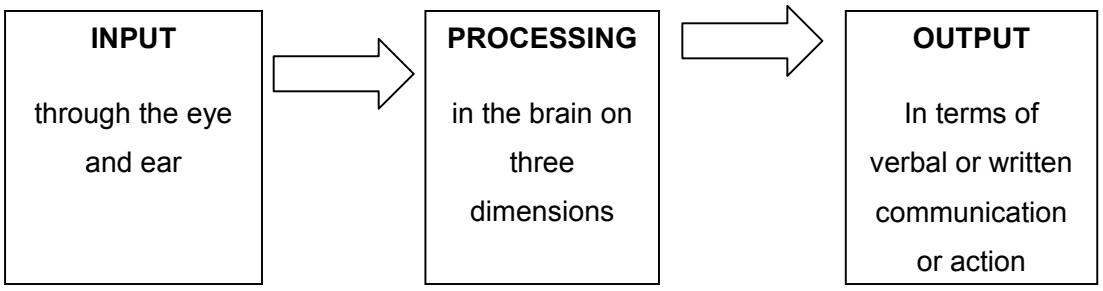
PROFILE SUMMARY: RS 05

March 2009

Your dominance profile reads as follows:

Input	Eye:	right	(Logical/detailed processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	right	(Gestalt/creative processing)
		top	(Cognitive)
		front	(Expressive)
Output	Hand:	left	(Gestalt/creative processing)
		right	Strong functional hand (superb communication)
	Foot:	left	(Gestalt/creative processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your right eye is dominant	
You thrive on factual information that you see.	You may easily find mistakes in material and may come across as being perfectionist and critical.
	At times you need to reduce the level of visual input that you receive so that you can process information. Once this is clear you will deliver with emotion and passion.
Listening skills Your right ear is dominant	
You have very strong listening skills and these dominate your method of gathering information.	You may have a strong need to talk to yourself to solve problems and often need time alone to process information.

You listen for factual and structured information and easily hear inconsistencies.	You may easily hear mistakes in material and may come across as being perfectionist and critical.
	At times you need to reduce the level of auditory input that you receive so that you can process information. Once this is clear you will deliver with emotion and passion.
Lesson structure	
You stick quite strongly to the parameters of your lesson plans and you like to decide for yourself how you want to get there.	
Your link between you brain and your foot allows you to be impulsive. This implies that when you have a plan you want to be able to do it without interruption. You need to be provided with a sense of freedom and to be left alone. You have a philosophy of “tell me what you want to accomplish and I will do it”	
Your competence relies on the quality of information that you are provided with. You have an in depth understanding of problems and are able to view them from a variety of angles.	
The manner in which you do things in the classroom will be determined by the group that you are working in. You adapt to their style and are highly flexible.	
The cognitive, right side of your brain being more dominant, showing qualities for being able to implement engineering style qualities that are logical and structured, but	

at the same time using your hands for creativity.	
You are stimulated by the interaction you have with the students that you teach.	You like continual change and challenges, and find it difficult to teach on lower levels of learning with a lot of repetition.
Teaching administration	
Research provides an important base for the material that you use and the quality of this material is important to you.	You can however accommodate material developers if they make errors with the content, but would like them to improve it.
You want accurate information to teach. You implement the material creatively in the classroom.	
You work equally well with both left and right brain dominant learners because you yourself have a holistic perception of the combined detail and big picture required to place information into context.	
Information Processing You use mainly the upper right part of your brain (cognitive creative), with a high level of expression.	
When combining visual information from the right eye, and auditory information from the right ear, you stimulate the left brain hemisphere. This allows for you to come across as having a strong sense of logic and factual knowledge. Your creativity is however even stronger in your profile.	You like to do things your way, rather than using other people's structures. You want people to give you clear instructions and parameters, but you want to be trusted to implement them correctly.
You were born to be a creative problem solver. You analyse data to find solutions to problems.	You do not want to be told *what* to do, nor to be provided with instructions on *how* to do tasks. You want to choose the options

	that you have available to you.
Your teaching output is expressive.	
You do have an impulsive streak in you but you have learned through experience to keep quiet when you think that it is appropriate. This allows you to maintain your power base.	
You have an extremely strong values base which underpins you behaviour and your highest value lies with your family, not with your job.	
Body language	
You move away from a situation when you are in a confrontational situation. You do not give others permission to dominate you nor to judge you. You personal power is a source of strength to you and you need to hold onto it.	
Additional information	
Your maturity helps you to control yourself. You are not confrontational, instead you move away from the situation, gather the information that you need and then return to a strong argument where you support your response with factual evidence.	When under stress your ability to visual and auditory structures are blocked and you tend to walk away to solve the problem.
You will not be manipulated by those around you. This is because you hold on to your personal power and do not give others permission to judge you.	

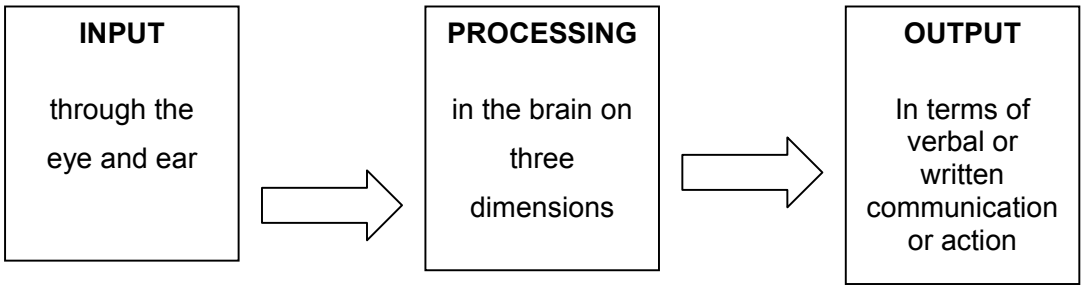
PROFILE SUMMARY: RS 06

March 2009

Your dominance profile reads as follows:

Input	Eye:	left	(Gestalt/creative processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	left bottom front	(Logical/detailed processing) (Emotional) (Expressive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	right	(Logical/detailed processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitation of learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitation of learning:**
Visual information Your left eye is dominant	
You have a creative eye that generally sees information in a holistic perspective.	You may not teach easily using PowerPoint presentations.
You probably write notes (flipcharts) using headings, bullets and pictures making them easy to read from a distance.	You may find that you need to put a lot of effort into reading lecturing material, or anything that requires reams of information.
	Your left eye dominance creates a problem for you with regard to marking as it often

	not accurate and leaves out detail and facts.
You as you have a love of beautiful things because they feed your emotions. What you see may also affect you emotionally and consequently affect your mood.	Your present office space where you face a wall narrows your mind and the open office space that you have may be distracting to you. It is therefore important to face a window in the office to feed your emotions.
You probably easily make provision for the movement and rearrangement of classroom furniture.	
You allow for freedom of expression of learners in their own presentations.	
Listening skills Your right ear is dominant	
You have objective hearing and as a result you focus on *what* is said rather that *how* it is said. Your attention may therefore focused on the logic of the information rather that the underlying emotion.	Your right ear is stronger that your left ear and you may at times make people feel hurt by your response to them.
You probably have a good use of semantics and syntax.	
You like to be told information and easily come up with your own plan for lesson presentation. You will rather focus on the logic of the spoken information when teaching.	You may not like to gather information through extensive reading and as a result will probably not teach according to a manual.
Body language	
You come across as being in control with a high level of organisational skills.	In stressful times you may become mechanical and unyielding in your behaviour.
You may have a need to process	Sometimes you may speak too much.

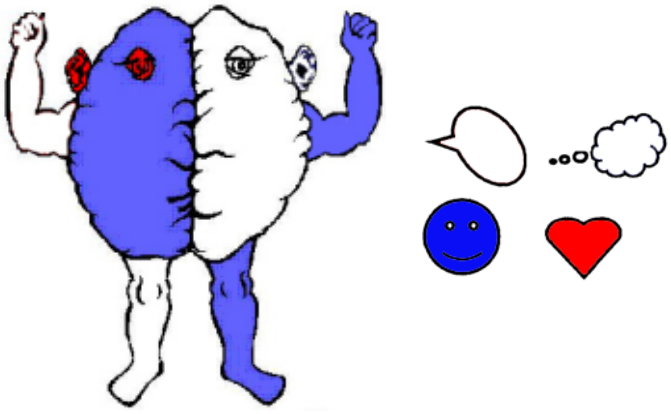
information externally and do this best through discussion.	
You are easily able to interact with a wide circle of people on varying levels.	At times you may lack sensitivity to some of the students emotional needs.
You may lead the students by being a role model for them, demonstrating what you expect from them and being prepared to do tasks yourself too.	Because you have perfectionist tendencies this may cause you stress because you probably want to perform well.
Lesson structure	
Generally you may focus on language correctness, using the correct terms and semantics in your lessons. You also articulate your words well with a high level of precision in how you speak. Because you are expressive you do find it comfortable to speak for long periods of time.	
There may be an orderliness and consistent presentation of information within your lessons, creating a certain level of formality to the learning process.	At times you may become inflexible if you are trying to achieve a specific outcome.
You have a good use of verbal skills and provide accurate information. Your presentation is also reliable and predictable.	Only when you are relaxed and comfortable with your students will you completely have fun in your facilitation process, because you can add a creative streak to your presentations.
	You may at times strive for perfection in your lessons, creating a degree of stress to yourself.
Your style is to deliver a certain output and meet the learning outcomes of the lesson. You consciously will determine boundaries	You may sacrifice certain spontaneity in your lessons to achieve a desired outcome.

and time frames within which you are teaching so that you meet your objective through planning.	
Classroom image	
You may be time conscious about your planning and lesson presentation, planning lessons to timeframes.	You time consciousness may cause you to be more future orientated in you lessons and as a result you may lose the “magic of the moment” within a lesson.
	Learners are unaware of the type of emotion that you frequently put into your input process to get to the relaxed image that you portray.
You tend to be proactive and want to solve problems and difficult situations.	You may do more than is required of you in your job, because you want to see tasks get done and problems to be resolved.
Teaching administration	
You may find a certain security in planning your lessons and knowledge that you are following procedures that are required by the learning institution. This may also allow you to set high standards.	
	Planning may lack creativity, and is more based on facts and accuracy.
You teaching administration may be detailed and up to date because you have discipline and structures in place for yourself that measure your own performance.	Planning and marking is neat.
	At times marking may be inaccurate when overwhelmed by too much to do or when stressed.

Information Processing You use mainly the lower right part of your brain (cognitive creative), with a high level of expression.	
Your own style of learning requires that you talk and write to learn. As a result you may often find that you have "aha" moments in the classroom because you yourself may have assimilated new information.	This characteristic makes you sometimes wonder if you do not gain from the facilitation of learning than what your students do. The emotional connection is important to you.
You express yourself easily and so you frequently combine the intellectual and emotional qualities of your subject well.	
Problems that you may encounter are frequently solved by a combination of instinct, emotion and logic.	You may see too many options when you need to solve some problems and try to be too accommodating.
Because you are so expressive you may get energy from your interaction with students.	
You see your role as one to inspire and motivate others.	
Additional information	
	Under stress you can be over focused on the task at hand.
	In times of stress you may take things personally and become overly sensitive.
	You may become too accommodating of the students needs.
	You have a strong sense of justice seeing what is right and wrong. At times this can make you unyielding in your behaviour, especially under stress.

PROFILE SUMMARY: RS 07

March 2009



Your dominance profile reads as follows:

Input	Eye:	left	(Gestalt/holistic processing)
	Ear:	left	(Gestalt/holistic processing)
Processing	Brain:	left bottom back	(Logical/detailed processing) (Emotional) (Receptive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	right	(Logical/detailed processing)

Each person's processing of information occurs according to the following process:

INPUT	PROCESSING	OUTPUT
through the eye and ear	in the brain on three dimensions	In terms of verbal or written communication or action

In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your left eye is dominant	
You have a creative eye and so you love for drawing feeds your emotions and releases your creative energy. In the classroom this could be used by drawing pictures to explain concepts.	You may not teach easily using PowerPoint presentations.
You probably write notes (flipcharts) using headings, bullets and pictures making them easy to read from a distance.	You may find that you need to put a lot of effort into reading lecturing material, or anything that requires reams of information.
You may plan assignment presentation in the forms of diagrams and tables so that it makes it easier for you to mark.	Your left eye dominance creates a problem for you with regard to marking as it often not accurate when reading reams of information and therefore leaves out detail and facts.
Your working environment is important to you as you have a love of beauty. It is important to face a window in the office. What you see may affect you emotionally	Your present office space where you face a wall narrows your mind and the open plan office space that you have may be distracting to you.

and consequently affect your mood.	
You easily make provision for the movement and rearrangement of classroom and office furniture.	
	You may need to add more focus on the achievement of predetermined specific outcomes in a lesson.
You allow for freedom of expression of learners in their own presentations.	
You tend to be more of a visionary and notice the potential of a situation rather than the reality of how it is.	You may need to focus more on the accuracy of academic aspects of a learning situation.
Listening skills Your left ear is dominant	
You have subjective hearing and as a result you focus on *how* is said rather that *what* is said. Your attention is therefore focused on the emotion of the information rather that the underlying facts.	Often what you hear may be subjective and therefore evokes an emotional response within you. You then tend to react on the emotion and not necessarily on what you may have heard.
Your focus is on the understanding of information rather than the factual detail.	You may also generalise information leading to assumptions being made about what you may have heard.
	At times you may need facts to be repeated to you so that you can grasp the accuracy of information.
Body language	
You are generally a more introverted person and tend to gather information from observations rather than interactions with students.	You appear to be passive and slightly distant from students. This is may be because you profile indicates that you may be introverted and do not actively seek attention.
You tend to lead the students through	You appear to prefer to interact with small

encouragement rather than by being a role model to them.	groups of students at a time and these interactions can become quite intense. At times this may make students feel left out of your discussions.
Lesson structure	
You show a passion for stories and so much of what you teach may be told with stories to illustrate what you mean.	Stories expose much of who you are and experiences that you have had. It may also expose you emotionally and at times you may not want to do this.
You are target driven and so much of your teaching is action driven to reach an end goal.	In the classroom your aim may be to meet the learning outcome and a specific objective. This makes you appear driven and so you may not casually interact with the students as much as they may like to.
You passion lies in creativity	At times you may block your creativity to achieve a specific outcome of a lesson.
You may like interactive and experiential style of learning take place in the classroom.	When doing interactive teaching and experiential learning you may need to get more interactive with the students.
Your overall aim for teaching may be about the challenge that it represents to you, and not necessarily the passion for imparting knowledge to students.	You may like to be left alone to plan the lesson so that you have the control over its format. Once it is complete and you have achieved you're the goal of the lesson you move on to the next challenge, perhaps without enough reflection to feed your own emotional status.
	Your profile indicates that you would undergo too much stress if you facilitate lessons on a regular basis because although you have strong language skills you are not an extrovert.
Classroom image	

You have a dynamic structure to your facilitation and display information in a radiant style, making links from a variety of seemingly unrelated sources.	
Teaching administration	
	Your dominant eye does not like reading and so marking is often viewed as an unpleasant chore.
	Marking may be inaccurate as you do not naturally focus on the detail of information such as spelling and referencing skills.
You are a good researcher and able to gather information in an ordered and structured way.	Much of our planning may be done in your head and not written down.
Information Processing You use mainly the lower left part of your brain (emotional logical), with a high level of receptive ability (observation)	
There is a strong emotional link between what you see and what you produce.	Be cautious because with the high level of emotion that you experience you may convince yourself that the subjective information that you are exposed to and observe is the reality, when in fact it may be your interpretation. This is because your sense of logic may convince you that it is so.
Your profile shows high levels of creativity and is dominated by seeing the potential in situations and the strategy involved in achieving the strategy.	You do need to pay more attention to the logistics and practicality of achieving your intended outcomes.
You need to feed your soul through creativity and this may maintain and sustain you.	

You have a strong sense of what is right and wrong and you may act upon that information.	You may become reactive in your response. At times such as these you need to be sure that your response is based on fact and not emotion.
Additional information	
	You display a strong need for things to be done according to your way.
	In times of stress you may appear under focused on the task at hand and you may also appear distracted.
	Under stress you may loose your ability to focus and then act without thinking. This is because you have a block between your incoming information and your ability to process it when stressed.
	May at times feel overwhelmed when stressed and as a result you may forget some details of information. This level of stress may cause you to rely on the only logical output structure that you have in your profile, your right foot. As a result you may throw procedures at other people as a way of controlling them, yet you may not stick to those procedures yourself.

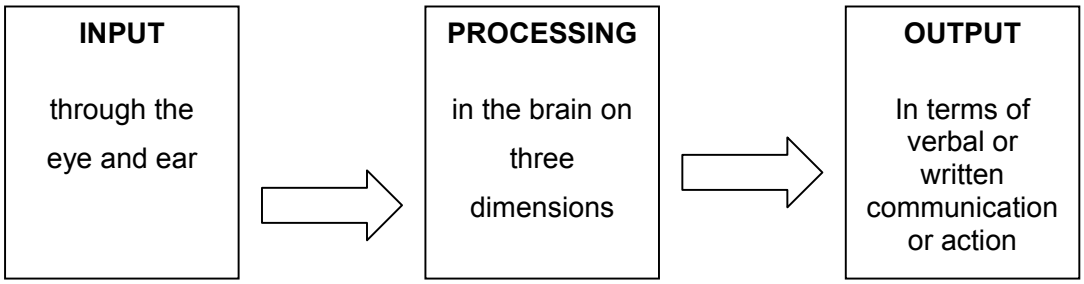
PROFILE SUMMARY: RS 08

March 2009

Your dominance profile reads as follows:

Input	Eye:	left	(Gestalt/creative processing)
	Ear:	right	(Logical/detailed processing)
Processing	Brain:	left	(Logical/detailed processing)
		top	(Cognitive)
		front	(Expressive)
Output	Hand:	right	(Logical/detailed processing)
	Foot:	left	(Gestalt/creative processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your left eye is dominant	
You are able to see things in a holistic perspective which forms an important and this makes you a visionary that sees the potential that other people hold.	You can view things from many different angles making you see everybody's perspective when planning, making your choices difficult at times.
As a lecturer you see the bigger picture and the expected outcomes of the facilitation intervention.	
You may write stories and songs for	

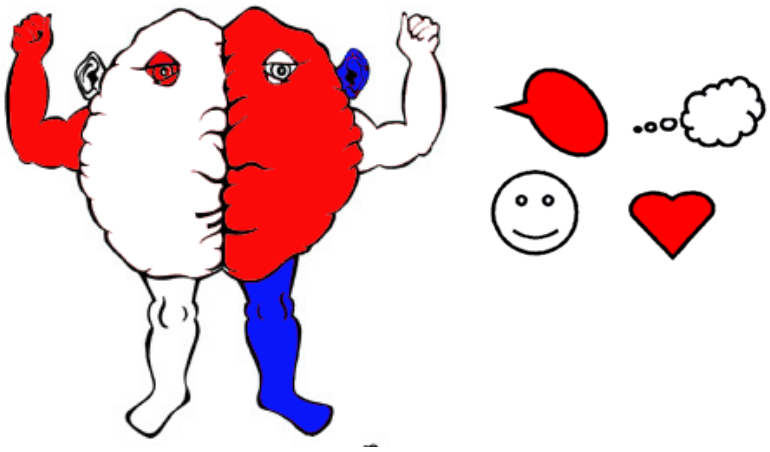
pleasure for emotional reasons, not to transfer facts.	
	Your creative eye naturally prefers to read from right to left at time causing inaccuracies to occur in what you write. Your right eye may take dominance at these times when you attempt to proofread material but you will probably tire very easily.
	You may need to check our spelling when writing in the classroom.
Listening skills Your right ear is dominant	
Your auditory skill is your dominant method of gathering information. Your auditory input is logical and draws on the strength of your dominant left brain hemisphere.	
When you listen you take in a lot of facts and detail.	You may find it difficult to work with people because you may need more structured and reliable information to make decisions about people.
You may listen to the linear sequence of information. You also listen critically and analytically placing emphasis on the detail of what is said.	The underlying emotion of what you hear is irrelevant to you.
Lesson structure	
You are an astute communicator with a strong link between what you hear, how you process it and your hand. This allows you to reason around what you hear. You	

also express yourself well.	
You present your lesson using charts which are clear, using pictures and diagrams to clarify information.	
Allow your students to have a certain freedom of expression.	
You present information in an ordered and consistent structured way. The information is also based on accurate and reliable facts.	
You are time conscious and strive for some level of perfection in you lessons.	
You are able to read the group well and you will facilitate the process to go to where you want to be n the end of the intervention. You communicate what you want, finish with it and then move on to the next step.	
Your right foot allows you to produce certain flair to your presentations. This allows you to add something extra to your lessons.	You want to do things your way and don't like to be told how to present the information.
Teaching administration	
Your profile allows you to produce the output required of you.	Your left brain is perfectionist orientated and forces you to have right eye control when reading for detail.
You appear to analyse information in an unemotional way, but internally you probably feel quite passionate about what you do.	This is because you control your emotions. As a result people don't generally know who you are.
	You always deliver on what is expected of you, and you also don't like to make

	mistakes. This creates an internal turmoil for you.
Information Processing You use mainly the upper left part of your brain (cognitive logical), with a high level of expression.	
Your profiles shows many aspects of a CEO profile. The only area that needs to be developed is you ability to display more emotion..	You decide things on cognitive and logical skills rather than emotion.
You don't get stressed easily and take time to get angry, allowing you to take time to make important decisions in your life.	
Body language	
You seldom show expression about what you feel and so generally people find it difficult to read what you are thinking. This is a source of power to you.	
You come across as an academic because of your strong logic and cognitive skills that are combined with an ability to express yourself well.	
Additional information	
You are a strong individual who has a strong competitive edge.	You hate being boxed in and being seen as a conformist.
	In times of stress you may feel overwhelmed and lose the ability to reason.
	Under stress you may find it difficult to see things in perspective and then to make a decision.

PROFILE SUMMARY: RS 09

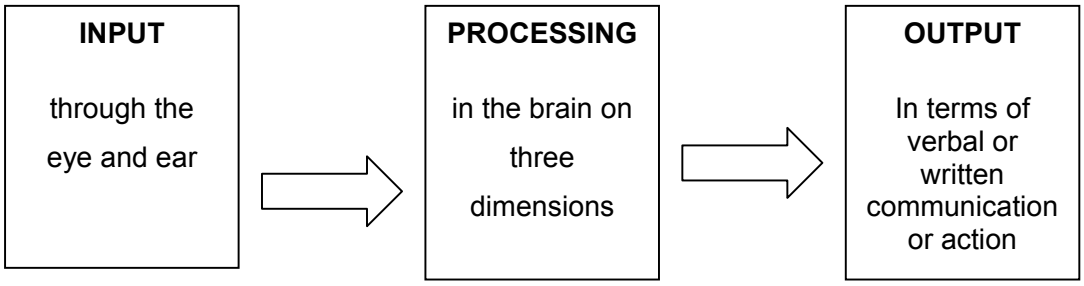
March 2009



Your dominance profile reads as follows:

Input	Eye:	left	(Logical/detailed processing)
	Ear:	right	(Gestalt/creative processing)
Processing	Brain:	right	(Gestalt/creative processing)
		bottom	(Emotional)
		front	(Expressive)
Output	Hand:	left	(Gestalt/creative processing)
		right	Strong functional hand (superb communication)
	Foot:	right	(Logical/detailed processing)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

STRENGTHS	**AREAS OF DEVELOPMENT**
Your profile displays the following *strengths* with regard to lecturing and facilitating learning:	**Your profile displays the following *areas of development* with regard to lecturing and facilitating learning:**
Visual information Your left eye is dominant	
You have a creative eye. As a result of this you may find that you skill in drawing feeds your emotions and releases creative energy in the classroom. You may use drawings to illustrate important points to students.	You may not teach easily using PowerPoint presentations.

You write notes (flipcharts) using headings, bullets and pictures making them easy to read from a distance.	You find that you need to put a lot of effort into reading lecturing material, or anything that requires reams of information.
	Your left eye dominance creates a problem for you with regard to marking as may not be accurate and as a result you may omit critical detail and facts.
Your working environment is important to you as you have a love of beauty. It is important to face a window in the office. What you see may affect you emotionally and consequently affect your mood.	Your present office space where you face a wall narrows your mind. The closed blinds behind you also prevent you from seeing outside. The open office space that you have may be distracting to you. If you are unable to change your office space then you may need to go on outside during the day to reduce your stress levels.
You easily make provision for the movement and rearrangement of classroom furniture.	
You allow for freedom of expression of learners in their own presentations,	
Listening skills Your right ear is dominant	
You have objective hearing and as a result you focus on *what* is said rather that *how* it is said. Your attention is therefore focused on the logic of the information rather that the undelying emotion.	Your right ear is stronger that your left ear and you can at times make people feel hurt by your response to them.
You have a good use of semantics and syntax.	
You like to be told information and easily come up with your own plan for lesson	You don't like to gather information through extensive reading and as a result will not

presentation. You will rather focus on the logic of the spoken information to maintain the flow of your lessons when facilitating lessons.	teach according to a manual.
Body language	
You see with a holistic perception. You read the classroom situation and mood well and can adjust to your audience accordingly. You see learners and immediately develop a report with them.	Always come across as being relaxed, when sometimes the teaching situation may require some more formality. This may be because you may place more emphasis on the mood in the classroom "feeling" right rather than "looking" right
Lesson structure	
You generally process information from a holistic perspective and then analyse it. This means you start with the bigger picture to place information into context and then move to the substructures ad detail of a lesson plan.	
You may tend to focus on the holistic understanding of information and allow students to become emotionally involved in material.	Sometimes you may not provide enough information and structure for the students who may gain security from using their manuals.
You facilitate learning rather than present a traditional lecture. This allows you to create and deliver information that is specific to the needs of the audience, making the learning process alive.	
Classroom image	
	When lecturing you may find it difficult to draw boundaries and easily go with the flow that the learners determine. It is

	important that you as the facilitator draw boundaries for self- protection and to guide the learning process.
	Learners are unaware of the type of emotion that you frequently put into your input process to get to the relaxed image that you portray.
	Many of your classroom decisions may be based on instinct and may be impulsive.
Teaching administration	
You may find a certain security in planning your lessons in the knowledge that you are following procedures that are required by the learning institution. This also allows you to set high standards.	
Your style is to deliver and output and meet the learning outcomes of the lesson. The flow of the class will determine how you teach.	You need environmental structures that support your teaching style, which often are not present in your present teaching environment.
	You find structure and control of administrative processes difficult.
	You are proactive and as a result you may frequently take on more that your share of tasks.
Information Processing You use mainly the lower right part of your brain (cognitive creative), with a high level of expression.	
You have a passion to tell the students *why* processes happen rather than *what*	Much of what you teach is driven by passion for the topic and when in the

they are.	process of teaching you may use extensive use of emotion to interpret information.
Your style is a very contextual one because you are able to see what they can become with the knowledge that you will share.	Some students are unable to see things fro your point of view and sometimes you need to slow down a bit for them to catch up.
Facilitate well with students regardless of the intellectual level that they may be on. This is because it is the imparting of knowledge that drives you in the belief that you are making a difference, regardless of who it is.	
You have extrovert characteristics in the classroom, allowing you to interact with a wide circle of people.	
When you present information you talk solidly in a structure manner which is supported by your creativity.	To do this differently you could use more lateral thinking and use a greater variety of examples to ground your facts.
Because you are so expressive you may also get energy from your interaction with students.	On the rare occasion, when you are stressed your left brain shuts down and you become quiet.
You see your role as one to inspire and motivate others.	At time you may like to be the centre of attention rather that the students.
Additional information	
	Under stress you can be over focused on the task at hand.
	You may become too accommodating of the students needs.

APPENDIX B
THE RESEARCHER'S MIND DYNAMIX PROFILE®

THE RESEARCHER'S MIND DYNAMIX PROFILE®

Each hemisphere of the brain has prescribed functions and specialised areas. In this manner the brain avoids replication. Out brain hemispheres work together so that we experience a combination of logical and gestalt characteristics in everything that we do. There is however a tendency for one hemisphere to be dominant. This dominance effects how we respond to experiences under stress. As the researcher, I am acutely aware of this stress before lecturing a module. The more unfamiliar I am with the course material, the higher the stress level. Armed with the knowledge of how I use my brain and senses, I am better equipped to face the challenges of investigating adaptations to my style of lecturing in the classroom.

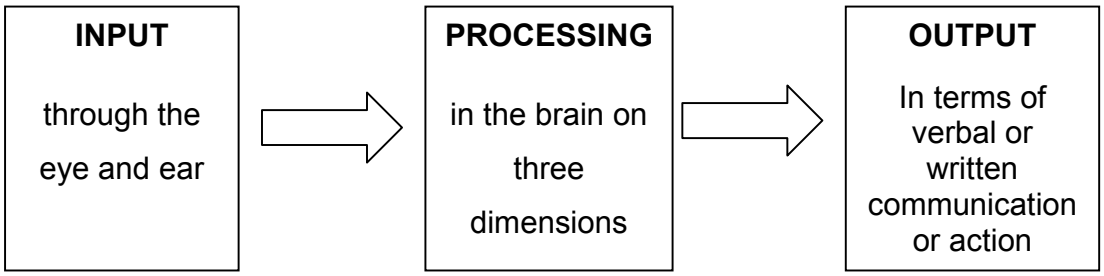
The researcher's dominant modalities are indicated in the following way:

INPUT (The method in which we gather information from the environment)
Eye Right (Logical visual)
Ear Right (Logical auditory)

PROCESSING (How we process information in the brain)
Brain: Left hemisphere (logical processing)
Emotional
Expressive

OUTPUT (The means of communication with the external world)
Hand Right (logical communication)
Foot Right (action is controlled)

Each person's processing of information occurs according to the following process:



In understanding the Mind Dynamix Profile® it must be remembered that the major nerve pathways cross in the brain and consequently control the parts of the body on the opposite side.

INPUT OR GATHERING OF INFORMATION

All people gather information with the dominant senses of the eye or the ear. My dominant senses of the eye and ear are both on the right side and feed to the left brain hemisphere, indicating that I gather only detailed information.

THE RIGHT EYE

Scope of learning opportunity: As the researcher I find it important to contextualise the lecturing context through situational analysis, in order to meet the needs of the students. A lot of attention is paid to step-by-step planning of the lecturing process.

Classroom layout: Planned according to the specific needs of the lecture, usually in symmetrical group formation of 4-6 students, spaced equal distance apart. I feel a need to control as many variables as possible to prevent stress caused by unforeseen circumstances in the lecturing process, and have an

almost obsessional need for symmetry and neatness in classroom, that is also extended to workbooks and PowerPoint presentations. They are also proofread several times, and presentations are rehearsed for flow.

Style of presentation: Information is planned to be presented in a linear, logical manner either in chronological or workbook sequence, depending on the course material. The higher the level of stress the more vocal I become, and frequently punctuate my explanations with the term “Does it make sense to you?”. Examples used in explanations are researched and referenced and I find a need for extensive additional research to be conducted beyond the scope of the course.

THE RIGHT EAR

At times when my stress levels are high, attention is only paid to the factual information contained in the questions and statements of the students. Questions are analysed before a response is given. Frequently the questions are rephrased into a more logical framework before a response is given.
The researcher finds background noises such as talking by the students, clicking of pens or ringing of cell phones distracting.
I am especially aware the my listening skills are limited and find it very difficult to place questions in a more holistic context and frequently ignore the emotion that a student may be expressing. In other words, I am listening to what the students are saying, not how they are saying it. By not listening empathetically I do not empower others to solve their own problems and process their own issues, but rather tend to want to do it for the students themselves.

PROCESSING OF INFORMATION

THE INFLUENCE OF THE LEFT HEMISPHERE

My left brain hemisphere is dominant, thus receiving both visual and auditory information quickly because of the direct link with these senses. In both sensory and processing attention is placed on the detail of information. Although immense objective detail is received, I find it extremely difficult to place information into a holistic context. Most of my thought processes are language driven, and I find that I continually have 'conversations in my head'. Stress levels always increase when I cannot remember factual information accurately or if I cannot find text in the notes quickly. To compensate for this I use a system of coloured 'post-it' markers in different colours to indicate portions of text that I may wish to refer to. Power Point presentations are printed out so that information can be presented in the correct sequence.

A planned programme is always drawn up with time allocations to each section, activity, planned teas and lunches.

I have always believed that this need for perfect planning was important because I owed this diligence to my employer. Through interpreting this profile I have realized that it is more determined by my own set of values that it is correct to always produce my best organisational skill and that in truth I am actually inflexible in my need for control because it provides me with a level of confidence that the learning opportunity is the best I can offer.

EMOTIONAL AND EXPRESSIVE CHARACTERISTICS

Other aspects of my profile are that I am expressive and emotional. This adds a level of relief to what I feel is a potentially obsessive compulsive planning profile.

This occurrence happens only once the students enter the room and I feel that I have done everything potentially possible for a successful intervention. The expressive aspect of my profile allows some level of adaptability because I communicate and interact easily with students and this leads to a level of relaxation. I am then able to enter a stage where I allow my intuition to take over, feeling that many of the problems that may begin to arise are solved as a result of intuition. Frequently I find myself discussing my own experiences and feelings which frequently allows the students to feel a link with my more human side, and they then also feel an openness to share, taking the intervention to an integrated and personal level. When I allow my emotions to take control I feel filled with passion and zeal to lecture.

I find that my response to criticism about my facilitation style or course material makes me feel threatened and I become oversensitive, but do keep absolute control of my emotions so that nobody would notice the decline in my confidence level. I continue to behave in an extrovert manner, and remain proactive in completing the course module according to schedule. It is my expressive abilities that allow for this to happen. Generally I find that I interact well with all the students and I make an effort to make them all feel part of the intervention, always including “outsiders’ in activities and tasks.

OUTPUT OF INFORMATION

THE RIGHT HAND

The right hand favours disciplined fine motors skills. I do use both a flip chart and a white board while lecturing and do write neatly, using print script and a variety of colours. I always clean the white board after each concept has been explained and only write one concept on each piece of flip chart paper. Diagrams are only

drawn if they are accurate, systematic and correct. I do feel annoyed with myself if diagrams are not perfect and will quickly clean the board so that nobody has to see these less than perfect pictures for too long.

When explaining concepts using diagrams I am always aware of a need to speak slowly, clearly and logically so that the explanation is clear and easy to follow.

THE RIGHT FOOT

I set high standards for myself, secretly having a need to outperform others. It is important ant to have all the protocols and processes in place. By having all the correct planning and processes in place I am convinced that I facilitate to the same consistent high standards each time.

IN CONCLUSION

My profile has much strength. It is considered to be an academic profile because enormous attention is paid to detail which is processed from input to output easily and quickly. Information is processed objectively, and I am able to express these facts in a manner which creates a forum for interaction for all students. Perhaps my biggest cause of stress is my perfectionist tendencies which I am aware can become obsessive and so need to change. Like most things I need to see my task within a holistic context and focus fact that my intervention is only a small part of a greater learning process intervention. Too much focus is placed on the learning process and not necessarily on the learning outcome.

In terms of presentation, my weakness is that I need to marry both achieving the learning outcomes with the correct process. I also need to accept that board work can be ‘messy’ so long as it reaches the objective as to why it was used. I also

need to talk less and focus on more student involvement in the lesson. Especially in a tertiary environment it is important for students to capture their own interpretation to information so that they can assimilate information. I need to develop a sense of trust in my own abilities, as well as in the structure of the facilitation process.

Furthermore, I need to pay attention to the fact the students need to be the centre of the learning process as sometime I do like to take centre stage. They need to be provided with the forum to access their emotions for learning to take place. I need to be spontaneous in allowing the students to lead the discussion at times and my presentation styles need to be bolder and more creative, beyond my personal safe zone.

AREAS THAT NEED TO BE DEVELOPED

Listen to how students are speaking and perceive emotional issues that may be pertinent to the topic

I need to manage my “internal world” and recover quicker from emotional imbalance

I need to share responsibility for a group’s learning journey and not take full responsibility for it myself

Place less emphasis on obsessive preparation

Not become over focused on the facilitation process

APPENDIX C
THE FINAL RESEARCH QUESTIONNAIRE

FINAL EMAIL RESEARCH QUESTIONNAIRE ON YOUR MIND DYNAMIX PROFILE®

Please complete the following questionnaire and email it back to mickey@regenesys.co.za

Question 1
What was your impression of your own Mind Dynamix Profile® when it was first measured?
Type your answer here

Question 2
What was your reaction to the written explanation of your Mind Dynamix Profile®?
Type your answer here

Question 3
In what way has the process of sharing your Mind Dynamix Profile ® with you impacted on the manner in which you facilitate learning?
Type your answer here

Question 4
Do you think that your present style of facilitating learning was taught to you or did it develop intuitively?
Type your answer here

Question 5

If you felt the need to adapt your style of facilitating learning to become more "adept at your craft*", how would you do it?

Type your answer here

* Hugo (2005:79) describes lecturers who are "adept at their craft" as lecturers who are adept in their content knowledge, pedagogic knowledge and pedagogic content knowledge and thus have a quality to their facilitating of learning that demonstrates excellence in their performance as recognised by their peers.

Question 6

Has your Mind Dynamix Profile ® had any effect on any other of your behaviours in your working environment? Please provide details.

Type your answer here

Question 7

During discussions with you so many of you mentioned that you love lecturing. Many of you spoke of a "driving passion" or "love of what you do" as a motivating factor for continuing in your profession, even when stressed and in difficult times. If you do feel this way about lecturing, then please expand on your perception of this concept and explain how it manifests itself to you.

Type your answer here

Question 8
How would you describe the concept “whole brain lecturing”?
Type your answer here

Question 9
How would you experience spiritual intelligence in your practice of facilitating learning?
Type your answer here

APPENDIX D
RESULTS OF FINAL RESEARCH QUESTIONNAIRE

RESPONSES TO FINAL RESEARCH QUESTIONNAIRE: QUESTION 1-3

	Question 1 **What was your impression of your own Mind Dynamix Profile® when it was first measured?**	**Question 2** **What was your reaction to the written explanation of your Mind Dynamix Profile®?**	**Question 3** **In what way has the process of sharing your Mind Dynamix Profile ® with you impacted on the manner in which you facilitate learning?**
RS 01	I was surprised to see the matching of I thought I was and what the Profile showed to me	Positive but cautious – I don't want to be put in a little box…However I am now trying to check myself every time that I am thinking, doing and saying something…	At this time nothing dramatic has changed however I am aware of more things.
RS 02	WITHDREW FROM RESEARCH STUDY		
RS 03	My impression was that it was spot on. It gave me the opportunity to understand my own behavior and improve my actions and change my work environment in such a way that it is conducive to the stronger parts of my brain function.	Again, my reaction was positive. It gave a clear indication of which parts of my body are stronger and how I should change my environment to improve success.	I am more aware of the fact that other people also have strong and weak areas and are more observant to determine what they are. I also try to group learners together that my support one another, i.e. left and right brain dominant learners instead of having one group that is only left brain dominant and another that is only right brain dominant. I also try to vary the activities and my facilitation style so as to accommodate people of both brain dominance groups.
RS 04	Very accurate when measured as opposed to self-assessed	Much self reflection	Added to awareness that people and their processes differ
RS 05	NO RESPONSE TO QUESTIONNAIRE		

RS 06	I thought it a very interesting way of measuring how you experience and give output to certain things. Since it was explained that it was based on scientific evidence, I felt comfortable that it is measuring what it was suppose to measure	I thought it extremely accurate except for one or two comments. But I do not disagree with the comments, I just never thought of it and do see the evidence that it is sometimes accurate	I do make an effort to be conscious about the areas of development as indicated and incorporate it in the facilitation process where necessary
RS 07	That is was objective although surprising.	I did not receive. (researcher comment: This proved not to be true as it was given to her and discussed as well)	None, I have not had any opportunity to facilitate since that day.
RS 08	The method of assessment was very interesting, and the corresponding analysis of the personality traits and characteristics was very accurate.	I thought the analysis was surprisingly accurate	It hasn't changed that way I facilitate, but it supported the way I see myself in the classroom.
RS 09	It verified almost everything I knew about why I do certain things in a particular way. I say almost everything aboutt Mind Dynamix Profile® "connected the dots for me.	It was like looking at a "roadmap" as to why I did things in a certain way, how I learned things, how I facilitated etc.	I am much more aware of why and how I facilitate and what type of effect I have on learners or students. I am also aware of why learners or students react the way they do.

RESPONSES TO FINAL RESEARCH QUESTIONNAIRE: QUESTIONS 4-6

	Question 4 **Do you think that your present style of facilitating learning was taught to you or did it develop intuitively?**	**Question 5** **If you felt the need to adapt your style of facilitating learning to become more "adept at your craft*", how would you do it?**	**Question 6** **Has your Mind Dynamix Profile ® had any effect on any other of your behaviours in your working environment? Please provide details.**
RS 01	I am convinced that it developed intuitively over the years…	Difficult but I will have to set up a chart of "do and don't" and that will most probably be very frustrating…I know andragogic and pedagogic and I am convinced that it adds quality to what you do	Not directly however it has made me aware of a couple of things…
RS 02	WITHDREW FROM RESEARCH STUDY		
RS 03	Most of it I developed intuitively. However, it was based on knowledge of how adult learners learn and what their preferences are. Adult learners are quite different from children and require more interaction of learning with their daily tasks. Practice and understanding of how it fit into their real world is also very important to them. Having said that, there is in all of us a child that also wants to be part of the learning experience. Using various techniques such as games, competitions, etc to stimulate the more creative and higher though pattern is therefore just as important.	Through the use of more technology. Within my field it is often very difficult to explain the use and creation of document management systems etc. without explaining the programming and mark-up behind such databases.	Yes, I am more aware of the mind dominance of my colleagues and try to manage them according to that brain dominance. Some for example has to receive instructions in writing while others can just listen and will know what to do. It had a major impact on how I delegate tasks and motivate my staff.

RS 04	Both	Solicit feedback on facilitation from repected facilitators in relevant field	Not significantly but the content of the report was not new – have done some personal development work previously
RS 05	NO RESPONSE TO QUESTIONNAIRE		
RS 06	Definitely intuitively, although you do incorporate some things that you learn over time, but most of it comes naturally	By ensuring more time for the aha moments, the spontaneous and less focus on meeting the deadline	Yes it has. Although I am still not facing the window, I did change my desk to at least not face a wall directly and still have the benefit of seeing the full office as well as the outside. I also understand to some extend now why I do certain things the way I do and do try to improve on these
RS 07	It developed intuitively.	Not applicable.	No.
RS 08	Developed intuitively	I need to find more innovate ways of facilitating learning – I tend to stick to things I know, and don't constantly look for new ways of facilitating.	No.
RS 09	It was developed intuitively. I also observe others but always revert back to my "gut feeling"	I would try to adapt to the learners needs as and when I observe them. By doing this I can "lead" them to find the answer as opposed to me telling them. Being interactive and "seeing" the student's potential becomes the focus. Helping them unleash that potential becomes the activity	Yes it has. I feel as if I have become more aware of how I react to situations and why I react that way. I am more aware of my emotions than before and how it can be used positively in my working environment.

RESPONSES TO FINAL RESEARCH QUESTIONNAIRE: QUESTIONS 7-9

	Question 7 **During discussions with you so many of you mentioned that you love lecturing. Many of you spoke of a "driving passion" or "love of what you do" as a motivating factor for continuing in your profession, even when stressed and in difficult times. If you do feel this way about lecturing, then please expand on your perception of this concept and explain how it manifests itself to you.**	**Question 8** **How would you describe the concept "whole brain lecturing"?**	**Question 9** **How would you experience spiritual intelligence in your practice of facilitating learning?**
RS 01	I think the aspect of self-fulfilment plays a role because after a session and I sense that it went good then I feel it….	I have to be analytical and artistic in what I do!!!	I believe in what I do!!! And for me SI starts there…
RS 02	WITHDREW FROM RESEARCH STUDY		
RS 03	I think true facilitators interact with every person in their lives in a manner of learning – either to learn or be taught. It is a natural process that manifests itself in every action that one takes.	For me it means stimulating all brain functions with a variety of tools and activities to enhance or optimize the learning experience. It is important to incorporate the logical and emotional sides of the brain into a learning experience to ensure that the newly learned skill or knowledge remains with the learner.	Very difficult question. Depends on what you see as spiritual intelligence. For me that is not part of what I focus on when facilitating. I much rather focus on emotional intelligence where I provide learners the opportunity to express their views and understanding and listen to it attentively without making an emotional judgment. I also encourage learners to listen to one another and give each on the required space and respect to have different

			opinions and differ from one another in a civilized manner.
RS 04	I believe that we all share the same highest purpose that is the pursuit of well being, that is transformed by our own personal peculiarities and development and thus manifests itself as such vocational predispositions and interests.	Integral learning facilitation engagement on inter and intrapersonal levels	Almost all true learning is spiritual to some extent, the degree of sensitivity and expansiveness of cognitive; metacognitive, conscious and non-conscious change that achieves positive impact on the learner and their greater context's wellbeing relates to spiritual development for me.
RS 05	NO RESPONSE TO QUESTIONNAIRE		
RS 06	Usually when I get ready for facilitation, I feel that I do not want to do this but would rather be doing other things like planning and management, but a "strange" thing happens when I facilitate…….. When facilitating, I feel extremely energized by it, which includes the fact that I feel in control, knowledgeable and enjoy the interaction with the learners. I normally get so much kick out of the process, but I do not want to do only facilitation. I also get the same kick out of completing a task that is office bound. I think it is about pushing your boundaries and getting it right.	I would describe it as taking the best of all "parts" and implementing in such a way that you give the benefits to the learners, who most probably will have different learning patterns from you. I think if you know which parts you are strong at and which parts you need improvement on, you can consciously bring in the improvement parts to expand to "whole brain lecturing"	By understanding that learners might be learning differently and adapting your facilitation style to include all learning, such as creativity, structure, holistic and specific.

RS 07	N/A.	This indicates facilitating your knowledge to all the different types of learners that you have. Taking into consideration that learners learn differently, some learn through pictures etc. and you need to consider all types when planning your formative opportunity.	Being responsible and accountable for the learning in your class as well as for the feedback, verbal and non-verbal, that you receive from learners. You need to take this constant feedback and orientate your learners accordingly without taking it personal. When you do not do this, you lose your ability to place yourself in time and space and then to "work" your learners from that space so that they are optimally assisted in their endeavour to learn and experience.
RS 08	I have a passion for teaching, particularly adults. I think I enjoy facilitating because it demand my full attention and on lecturing days, my day is planned and has to be executed as planned. I don't enjoy office politics and the pettiness that goes with it. in the classroom the only important thing is that the students engage and understand what they have come there to learn. I enjoy the interaction with the students. I enjoy making concepts they have found difficult to understand simple. I enjoy bridging the gap between the known and the unknown.	Using logic and creativity in the lecturing environment.	I don't experience spiritual intelligence in the facilitation environment. I use emotional intelligence – employing the ability to manage emotions in the classroom. SI may have an application in leadership or developing soft skills where people need to be aware of their own spirituality before they can lead others. Many of the topics that I teach do not lend themselves to bringing in SI.
RS 09	I feel as if lecturing is one of my main purposes in life. The ability to share what I have with others and to see them grow because of it is what keeps	If a facilitator can get the learner's whole brain to be involved in learning, then retention of information, understanding and subsequent performance is greatly	This is a difficult one in that it is not always possible to be "spiritually intelligent" when you are under pressure. I believe that when you

	me going. When I am stressed and I facilitate it is as if I forget the whole world and its worries. I feel like I am in the creative zone where I am able to "make magic" and this sustains me. I must admit that after an intense session I am usually exhausted but in a good way.	enhanced. This should be the start and end point for the facilitator.	understand the "whole brain" concept that you start to look for spiritual aspect everywhere around you. I focus on my sense of creativity and in doings so need to focus on what enhances me. That in turn makes me look at my values and this leads me to the spiritual aspect that I need to possess when I am facilitating. The more whole-brain I become the more spiritual I become.

APPENDIX E
LETTERS OF PERMISSION

First letter:	University of Pretoria Research Ethics Committee clearance certificate
Second letter:	Private Higher Education Institution letter of permission to conduct research
Third letter:	Permission to use Mind Dynamix Profile® instrument in this study
Fourth letter:	Example of research subject permission letter (the originals are held by the researcher)

UNIVERSITY OF PRETORIA

FACULTY OF EDUCATION

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**CLEARANCE NUMBER :** CS09/01/03
DEGREE AND PROJECT	MEd: Cur. & Instruct. Design & Dev. Implementing learning style flexibility for reflecting on change in facilitating learning in higher education.
INVESTIGATOR(S)	Helen Mariska von Maltitz
DEPARTMENT	Humanities
DATE CONSIDERED	26 August 2009
DECISION OF THE COMMITTEE	APPROVED

Please note:
For Masters applications, ethical clearance is valid for 2 years
For PhD applications, ethical clearnace is valid for 3 years.

CHAIRPERSON OF ETHICS COMMITTEE

Dr S Bester

DATE 26 August 2009

CC Dr P du Toit
Ms J Beukes

This ethical clearance certificate is issued subject to the following conditions:

1. A signed personal declaration of responsibility
2. If the research question changes significantly so as to alter the nature of the study, a new application for ethical clearance must be submitted
3. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Regenesys
Management

Jacaranda Place, Woodmead Business Park, 145 Western Servi
Woodmead,
Postnet Suite 405, Private Bag X28, Gallo Mar
Web: www.regenesys.co.za E-mail: info@regenes
Switchboard: 011 6
Fax: 011 6

15 May 2008

Regenesys Management
Woodmead
Sandton

To whom it may concern

PERMISSION FOR RESEARCH STUDY

This letter serves to confirm that Helen Mariska von Maltitz (student no. 25479718) has been given permission to conduct her research at Regenesys. We understand that the research is in partial fulfillment of a Masters Degree in Education (Curriculum and Instruction Design and Development).

Permission is therefore granted on the following conditions:

- That approval of all persons involved in data collection process is sought
- That classroom activities are not significantly disrupted
- That the results of this study are communicated with Regenesys Management

Yours sincerely

Riana E de Bruyn
Deputy CEO

UNIVERSITEIT VAN PRETORIA
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YUNIBESITHI YA PRETORIA

The BG ConneXion (Pty) Ltd
Reg. No. 2003/002520/07
P O Box 44389
Linden
2104

Tel: +27 11 888 5434
Fax:+27 11 888 5434
E-mail: admin@theconnexion.co.za
Web: www.theconnexion.co.za

THE BG CONNEXION (PTY) LTD
PO Box 44389
Linden
Johannesburg

16 November 2008.

Dear Mrs von Maltitz

RE: PERMISSION TO USE THE MIND DYNAMIX PROFILE© INSTRUMENT TO CONDUCT RESEARCH.

I hereby grant you permission to use Mind Dynamix Profiles© programs as part of your research thesis. I understand that the results of these observations will contribute to the partial fulfillment of your M.Ed. degree at Pretoria University.

The sections that I grant permission to use are:

- The Mind Dynamix Profile© Instrument
- Any illustrations that enhance the understanding of Mind Dynamix Profile©.

I will also aid in the provision of psychological support that may be required by the implementation the Mind Dynamix Profile© of the lecturer's profiles.

I understand that I may voluntarily withdraw from this study at any time.

Yours sincerely

Dr M de Jager

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To whom it may concern

As a lecturer in a Private Higher Education Institution, I hereby consent to be part of this research project entitled:

Implementing learning style flexibility for change of facilitation strategies in Higher Education.

I understand that this research will require:

- Attendance of a workshop explaining the use and function of the Mind Dynamix Profile® as a tool for changing lecturing strategies within my lecturing practice.
- The measurement of my own Mind Dynamix Profile®
- Reflection and interview processes which will provide feedback to the researcher on how I have adapted my lecturing style according to information gathered from the measurement of my own Mind Dynamix Profile®

I also understand that I have the following rights:

- To remain anonymous in al the research feedback
- I am able to withdraw from this research process at any stage without any consequence to myself whatsoever
- The research will not be disruptive to my practice as a lecturer

I am also aware that workshops and interviews will be recorded for the purposes of analysis at a later stage by the researcher and that they will not be published for any purpose other than the research dissertation. I will also retain anonymous within these. It has been further explained to me that there is a psychologist available for my debriefing should I at any stage feel uncomfortable with the findings and results of this research process.

_____ _____

Research supervisor Date

_____ _____

Researcher Date

_____ _____

Research participant Date