A TRANSDISCIPLINARY ANDRAGOGY FOR LEADERSHIP DEVELOPMENT IN A POSTMODERN CONTEXT

by

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DECLARATION

"I, Elaine Margaret Saunders, Student No 379 227 7, declare that 'A Transdisciplinary Andragogy for Leadership Development in a Postmodern Context' is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references."

This thesis is dedicated to

My special friend Michael, without whose support I could not have completed this project, and to Mike, Liz, Graeme and Leigh, together you light up my life

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ABSTRACT

The paper explores the complex nature of the postmodern world in which leaders find themselves and questions the appropriateness of the current discipline-based structure of MBA education in terms of its usefulness to develop effective postmodern leaders. What is called for is an approach to problem solving that is heuristic and also a tolerance for the temporal nature of solutions, flexibility, and multiple perspectives and inputs. Transdisciplinarity, which focuses on bringing together these different perspectives, provides a useful platform where developing leaders can engage with the dynamic and complex environment of a postmodern era. The nature of transdisciplinarity, from the perspective of a number of theorists, is presented. Furthermore, synergies between the transdisciplinary approach and the nature of postmodern leadership are identified and analysed. The paper examines synergies between transdisciplinarity and other scientific paradigms such as social constructivism, critical management theory, postmodernism, social cognitive theory, critical pedagogy, systems theory, complexity theory, cybernetics, narrative psychology, critical reflexivity, and others. The methodology is qualitative and involves the observation of a number of lecturing sessions at Business Schools in the United Kingdom, United States and South Africa, with the objective of noting whether any elements of transdisciplinary learning are evident. These observations are followed up with individual interviews with selected lecturers. The paper concludes with an analytical discourse on the value that a transdisciplinary andragogy can add to leadership development, particularly in relation to assisting students with embracing the complex challenges of leading in a postmodern era. The paper concludes that there is a significant lack of alignment with the prevailing approach to learning methodology in MBA programs and the nature of the postmodern world. The research recommends that a transdisciplinary learning methodology has a great deal to offer in terms of providing a learning environment for an emerging leader, that will equip him or her to be effective in a postmodern environment. Tools and methodologies for implementing a transdisciplinary approach to leadership development are suggested and outlined in some detail.

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INTRODUCTION

1.1 Preamble

This research addresses the current inadequacies in leadership development andragogy, particularly in regard to post-graduate business education, specifically Master of Business Administration (MBA) programs and to respond to some of the criticisms that have been raised over the years, in this regard. The solution offered in responding to these criticisms is a transdisciplinary andragogy for preparing leaders for positions in business, in a postmodern context. The following is a summary of the criticisms leveled at MBA education over the years. Beaty and Harari (1986) discussed the problem of the ineffective development of leaders in MBA programs 25 years ago. Atwater, Kannan and Stephens (2008) state that as far back as 30 years ago, the *Harvard Business Review* published an article by Livingstone on the challenges relating to business school education (Livingstone, 1971). This article was followed by further criticism along similar lines by several others (Bennis and O'Toole, 2005; Dertouzos, Lester and Solow, 1989; Goshal, 2005; Mintzberg and Gosling, 2002; Pfeffer and Fong, 2002; Porter and McKibbin, 1988; Steiner and Wells, 2000). Further criticisms of the relevance of business school curricula relate to the need to develop interdisciplinary process and to incorporate collaboration and reflective thinking in the learning methodology (Hamilton, McFarland and Mirchandani, 2000; Huber and Hutchings, 2004) Jones (2005) and Oblinger and Verville, 1998) reveal the concerns of business around a lack of synthesis and holism in curricula. This they say has prompted business schools to experiment with integrated learning programs designed to reduce this lack of synthesis between the classroom and the world of business. Datar, Garvin and Cullen (2010) call for the "rethinking of the MBA". This is based on their concerns that MBA programs currently do not provide students with heightened awareness around cultural issues and global perspectives. They claim that MBA graduates lack leadership skills and that creative and critical thinking capability is not at the appropriate level. Lecturers interviewed in this research questioned whether the MBA actually develops leaders and the notable leadership guru Ghoshal (2005) supports this in questioning whether in fact the MBA

process produces competent leaders. Sub-optimal competence in leaders is also evident in the fact that during the year 2000, forty CEO's of Fortune's top 200 companies were fired or asked to resign (Bossidy and Charan, 2002). They also say that for every successful new business there are 22 failures, the average life span for those that survive start up is only 11,5 years, every year 30 companies drop off the Fortune 500 list and lastly, that the average life span of firms on the S&P 500 (Standard and Poor's index of 500 stocks actively traded in the United States) is 25 years (Morris, 2003). Further evidence shows that poor performance has resulted in high turnover and a related average tenure for CEO's of around 18 months (Charan, 2005). Atwater et al. (ibid) criticize business curricula for being functionally isolated which results in a failure of students in understanding the way in which the parts of the organization work together. The manner in which transdisciplinary teams work together to solve real world problems comes to mind as a solution to this criticism. These theorists also argue that cross-disciplinary methods lend themselves to the use of systems thinking and that systemic thinking approaches would benefit almost every area of the business curriculum. Thompson and Purdy's (2009) article on curricular innovation in regard to maintaining the relevancy of business schools, shows that this issue is still being hotly debated. They have identified integrated learning programs in business schools as curriculum adaptations which are designed to make the MBA programs more relevant to business.

In a review of the book by Murphy & Riggio (2003), Ballard (2006) revealed the following :

- "little is known about the process of leadership development" (Day and O'Connor, p.11).
- "leadership research is largely irrelevant for leadership development". (Schriesheim, p.181).
- "(Multirater feedback and action learning) oftentimes prove to be expensive and time-consuming dead ends" (Conger and Toegel, p. 108).
- "out of 9 (higher education) leadership development programs, only one mentioned a leadership theory as central to their program" (Ayman, Adams, Fisher and Hartman, p.216).

The above provides support for the fact that the process of leadership development, that is, the learning/teaching methodology is under-researched and also that research carried out to date, offers little value to the leadership development process.

French and Grey (1996) claim that the social importance of management means that the field of management and management education must continually maintain an orientation of ongoing interrogation and evaluation.

Apart from the aforegoing apparent dissatisfaction with the achievements of business education in business schools around the world, questions that came up during the course of this research were: 'Do we develop leaders, and 'Can we develop leaders?' These questions came from some of the lecturers in the research sample, all of whom were lecturers on MBA programs. These are important questions considering that this research is aimed at examining the process of leadership development in MBA programs. Literature, for example, the writings of French and Grey and in particular, Thomas and Anthony in French and Grey (ibid), throws a spanner into the works by asking what management is, what leadership is and also, how can we purport to be teaching leadership and management if we cannot define it. The answers to these questions and the resolution of the debates that surround them are not part of this research. These authors also state that there are a number of activities that can be identified and associated paradigm that says that leaders are not born, but can be made (i.e. developed). This research therefore assumes that leadership can be taught and that it is taught primarily in Business Schools on MBA programs. The assumption is that the majority of MBA graduates will eventually find themselves in leadership positions in organizations around the world. Rubin and Dierdorff (2009) support this assumption through their research which indicated that 72% of business school graduates surveyed in their study, reported that they had entered a management or leadership position on graduation. Many business schools brand themselves in the context of developing leaders, for example the phrases such as "Sculpting Global Leaders", as well as "If you are determined to be a successful global business leader then our MBA is designed for you"; and "preparing business leaders to succeed in the global economy" are excerpts from the websites of the schools visited in this research. Other schools in this research sample list "leadership" as one of the learning outcomes of the MBA program. Other marketing strategies boast that the MBA will make the graduates 'skilled business managers". In support of this Pfeffer (2009) states that "business

schools see themselves as being in the business of producing leaders for both public and private sector organization" and he quotes Kim Clark, the former dean of Harvard Business school as saying that the mission of Harvard was to "educate leaders who make a difference in the world."

The first exposure of the writer to this concept of transdisciplinarity was in the *International Journal of African Renaissance Studies* which focussed on Multi, Inter and Transdisciplinarity and in particular the writing of Gutto, Songca and Zeleza. In distinguishing between multi and transdisciplinarity, Horlick-Jones and Sime (2004) in a discourse on the nomenclature of multi and transdisciplinarity suggest that the former relates to different disciplinary perspectives relating to the same entity. That is, there is co-operation between the disciplines but the methodology of a discipline-based process remains intact, but that in transdisciplinarity disciplinary boundaries are transcended in the search of a new body of knowledge. This distinction is important as it highlights the differences between transdisciplinarity, which is the subject of this study, and other forms of inter and multi-displinary learning.

The criticism of discipline based tuition models in leadership development (Atwater et al. (ibid) led to a curiosity about andragogy in leadership development on the part of the researcher, in the context of MBA programs. The researcher questioned whether our current methodology for developing leaders for immersion in the postmodern world, is in fact the most effective method. It would appear that current learning methodology for leadership development tends to be disciplinary and not inter, multi or transdisciplinary. Ivanitskaya, Clark, Montgomery and Primeau (2002) working in the Centre for Research on Adult Learning (CRAL) at Central Michigan University, expressed concerns about the traditional disciplinary teaching methodology in adult learning as it insufficiently addressed broader learning outcomes such as enhanced critical thinking, applied metacognition and greater sensitivity to cross-disciplinary connection (Ivanitskaya et al., 2002, p.96). They also draw attention to the fact that there are very few theoretical frameworks that address the issue of traditional and integrated teaching frameworks and that none exist for identifying expected outcomes for an interdisciplinary process. Davids (1995) and Jacobs (1989), advocates of interdisciplinary learning, argue that this approach may help students to cope with "increasingly complex and multifaceted work environments" (Jacobs, 1989) and may also assist in developing "problem-solving skills and complex perspectives most needed by modern society" (David, 1995). Given the above

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arguments regarding the traditional learning environment of developing leaders, it would appear that this lacks synergy with the complexity of the postmodern context within which leaders of today have to operate. Based on a review of inputs by academics around the world Coetzee (2009) concludes that their concepts and proposals were "inward-looking and disconnected from the global discourse on the post World War 2 world order" wherein future MBA graduates will work. He argues that although some visionary thoughts had emerged from the review, these were not taken up as part of a radical and necessary evolution of the MBA program.

Day (2001) reviewed leadership development methodology and argued that the popular forms of teaching such as classroom teaching, coaching, mentoring, networking, job assignments and action learning, fall short, some in more ways than others, in that they tend to underplay the importance of the development of social capital in leadership development. Day describes the process of developing social capital as building networked relationships among individuals that enhance co-operation and resource exchange in creating organizational value This kind of development cannot take place in classroom but evolves as groups of leaders interact together to learn about leadership. Although Day does not directly discuss transdisciplinarity, the shortfalls that he highlights in current leadership development could be addressed by introducing a transdisciplinary andragogy. The methodologies mentioned by Day most conducive to adaptation for the inclusion of a transdisciplinary approach are group coaching, networking and action learning. This is because all these learning methodologies involve group interaction and learning from each other. Transdisciplinarity can take this interaction to a new level where leaders would grapple with postmodern problems and would generate new knowledge in the resolution of these problems. Day also alludes to the issue of complexity by referring to the transforming element of leadership development as leaders evolve to higher levels of integration and differentiation. He applies the concept of "organised complexity" (Gharajedaght, 1999) to this process. Somewhat antagonist to transdisciplinarity and the postmodern paradigm is Day's preoccupation with control mechanisms reflected in his focus on measurement, organisation and accountability. This is counter-intuitive to the learning environment in transdisciplinarity, particularly in the postmodern context where control and regulation are proscribed.

Further reading, with the objective of tracing the nature and origins of transdisciplinarity, revealed that it was first mentioned in the 1970's by scholars such as Piaget, Morin and Jantsch

with specific reference to education (Nicolescu, 2002). The term was coined by these theorists as a result of the inadequacy of the terms multi and inter-disciplinarity. They felt that knowledge production was extending beyond the mere incorporation of input from various disciplines. However, the originating research and the first attempts to address transdisciplinarity as a credible science appear to be undertaken by a Romanian quantum physicist by the name of Basarab Nicolescu. He contributed to many collaborative transdisciplinary enterprises and founded the Centre International de Recherches et Etudes Transdisciplaires (CIRET), he also formulated the Transdisciplinary Charter and a Manifesto of Transdisciplinary for the 21st Century. The Charter was adopted at the First World Congress of Transdisciplinarity held in Portugal in November 1994. Nicolescu's studies in quantum physics revealed the complexity of the modern world. He claimed that reality exists on many levels and that transdisciplinarity is the only mode of knowledge production that can deal with many levels at once. In this approach it is evident that Nicolescu (2002) dismissed the Newtonian paradigm of knowledge production, that paradigm which claims that there is a logical and linear process in knowledge production, which can be produced by a single discipline. Transdisciplinarity generally rejects the traditional notion of science as Newtonian in nature. It provides a foundation for the production of knowledge and the resolution of problems in a complex, postmodern world. The fact that this new science of transdisciplinarity has only emerged and developed in the last two decades suggests that it seeks to address postmodern problems.

Alongside the emergence of transdisciplinarity is the phenomena of Mode 2 knowledge. Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) argued that a new form of knowledge production started emerging from the mid 20th century which is context-driven, problem-focused and interdisciplinary. It involves multidisciplinary teams brought together for short periods of time to work on specific problems in the real world. Gibbons and his colleagues labelled this "mode 2" knowledge production.

This type of knowledge is distinguished from the traditional discipline-based, investigator led, knowledge production which is described as Mode 1. Limoges (1996, p.14-15) wrote -

> We now speak of "context-driven" research, meaning "research carried out in a context of application, arising from the very work of problem solving and not governed by the paradigms of traditional disciplines of knowledge".

Nowotony (2003) identifies synergies between Mode 2 knowledge and transdisciplinarity. She defines Mode 2 knowledge as being increasingly appropriate to the context of application. She uses the example of modern organizations as being the type of context where transdisciplinarity and Mode 2 knowledge production takes place in a transdisciplinary context. This example highlights the importance of transdisciplinarity in a leadership context where a number of players come together to resolve problems within the context of the organization. She claims that Mode 2 knowledge has emerged in tandem with the postmodern changes in organizations which reflect an increase in flexibility, and a departure from command control hierarchies to flatter more consensual types of decision making. She criticizes universities for not having made this transition. The researcher notes that business schools, often part of a university structure, therefore are most often associated with this same hierarchy. The point made here is that the nature of business schools that teach management and leadership is antagonistic to the complex organizational environment, where their students come from. This highlights an important element of this research, i.e. the question around whether a hierarchical traditional environment can produce the kind of knowledge that developing leaders will find helpful in application to complex problems in a world which is non-linear and constantly changing. This research questions whether we can continue to apply a hierarchical, discipline based methodology to the development of leaders utilising a discipline based andragogy when these leaders operate in postmodern context characterised by a transdisciplinary, Mode 2 environment. The research also revealed that accreditation systems constrain lecturers in terms of their ability to respond to creatively to shortcomings in the MBA andragogy. One of these short comings relate to the ability to change the content and learning methodology to embrace a more holistic, interdisciplinary learning methodology that would allow leaders to be exposed to the complexity of the postmodern context. Research done by Navarro (2008) suggests that although

accreditation bodies could provide a huge impetus for transformation, there is little evidence that they intend to do so.

Thompson Klein (2004), from Wayne State University in the United States of America has extended the debate around transdisciplinarity from the European base of Nicolescu (2002) and Nowotony (2003) to provide a western contribution. She writes on the notion of complexity and transdisciplinarity and highlights that the new science of complexity has emerged recently (in the latter half of the 20th Century) and that this has been the catalyst in the emergence of transdisciplinarity as a mechanism that is more appropriate for knowledge production in a complex world, than the traditional linear approach which characterises the nature and structure of modern universities. (Thompson Klein, 2004) Nicolescu (ibid) acknowledges the contribution of Ron Burnett, in Canada, to the science of transdisciplinarity (Burnett, 2005). These four theorists, Nicolescu (ibid) and Nowotny (ibid) from Europe and Thompson-Klein (ibid) and Burnett (ibid), from America and Canada respectively, appear to be the key theorists who have developed the notion and science of transdisciplinarity and their writings form the foundation of this research.

This study must therefore integrate transdisciplinarity with postmodernism and Mode 2 knowledge production, to provide an holistic platform for recommendations around a more appropriate leadership andragogy for leaders in the 21st Century. The purpose of the research is two-fold, firstly to determine to what extent lecturers on MBA programs are using a transdisciplinary approach and secondly what is the potential for a transdisciplinary approach to address the current challenges faced by lecturers in MBA programs in regard to applying an effective learning methodology that will prepare their students to cope with the complex challenges that are faced by the leader in the postmodern context. There are a number of theoretical paradigms that are highly compatible with transdisciplinary as will be evident later in this discussion. Examples of these are constructivism, particularly social constructivism and critical theory.

Further reading on the concept of transdisciplinarity revealed many criticisms relating to the inadequacy of the disciplinary approach to knowledge acquisition, particularly in relation to the complexity of the postmodern era. Transdisciplinarity emerged as a result of what was seen as inadequacies in the traditional discipline based structures of universities and business schools,

who teach emerging leaders their trade. This traditional approach lacked the integration between disciplines that was becoming needed more and more when approaching complex problems in leadership, in the postmodern context. This postmodern world is characterised by complexity and this complexity is reflected in diversity, paradox, ambiguity and constant transformation and change. The writer's interpretation of transdisciplinarity is that it offers an integrated approach to learning which has a Gestalt quality in that it creates a "melting pot" of different perspectives from relevant disciplines that results in an output that is greater than the sum of its parts, i.e. new knowledge is created. This "new knowledge" is one of the defining aspects of transdisciplinarity and distinguishes it from multi and inter-disciplinarity. Morin (1997) supports the Gestalt notion of transdisciplinarity when he states that "the notion of transdisciplinarity evokes the idea that the whole is more than the sum of its parts".

This research critically explores the potential of a transdisciplinary andragogy in leadership development, within the context of an MBA education, that may result in a more relevant learning methodology to better equip emerging leaders for the complex, postmodern context in which they will be required to perform. This research makes suggestions on how the inclusion of a transdisciplinary approach to learning can be applied in business schools at post-graduate level, where a significant number of our future business leaders are educated.

In summary this research looks at the complex nature of the postmodern world in which leaders find themselves, and critically questions the appropriateness of the current discipline based structure of higher education in terms of its usefulness to develop effective postmodern leaders. What is called for is an approach to problem solving which is more heuristic and a tolerance for the temporal nature of solutions, flexibility and multiple perspectives and inputs. Transdisciplinarity, which focuses on bringing together these different perspectives, may provide a useful platform where developing leaders can engage in problem resolution within the dynamic and complex environment of a postmodern era. The nature of transdisciplinarity, from the perspective of a number of theorists, is presented and synergies between the transdisciplinary approach and the nature of postmodern leadership are identified and analysed. The critical role of dialogue in the application of transdisciplinary education is highlighted. The research examines synergies between transdisciplinarity and other scientific paradigms such as social constructivism, social cognitive theory, critical pedagogy, systems theory, complexity theory,

cybernetics, binary and hybrid systems, narrative psychology, critical reflectivity, postmodernism and critical management studies.

1.2   The Research Question

A review of the literature indicates MBA programs have been heavily criticised as inadequate for developing leaders who can deal effectively with the challenges of a complex, unpredictable postmodern world.

MBA lecturers need to apply a leadership development andragogy that is analogous and synergistic with the nature of the world in which the student operates as a leader.   Thus, the teaching methodology needs to embrace the complex, unpredictable and ambiguous nature of that world.   The researcher proposes that a transdisciplinary andragogy has the potential to add value to this process.

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1.3   The Research Paradigm

The research paradigm that has compatibility with exploring the concept of transdisciplinarity is that of constructivism and particularly social constructivism.   Brown (2006) describes constructivism as where "learning is seen as the individualized construction of meaning by the learner". Lecturers would therefore take on a role of facilitating learning, rather than didactic teaching. Social constructivism refers to communities of practice which Brown says are evolving and starting to play a significant role in learning environments.   These communities of practice are reminiscent of group learning where students are grouped together to solve problems in the process of engaging with a learning experience.   These communities of practice have further synergies with transdisciplinarity in that the power dynamic is equalized and the teacher and the taught are equal in term of their role in the group.

The research paradigm is an anti-naturalist paradigm.   The naturalist approach is that of understanding and prediction, which is not the objective of this research.   The anti-naturalist paradigm speaks of "the interpretation of meaning or of hermeneutic understanding" . (Martin and McIntyre, 1994)   The anti-naturalist paradigm is aligned with systemic thinking and cybernetics, which has synergies with the nature of the postmodern context.   Hermeneutics occupies itself with the inner reality of the individual, it does not concern itself with social structures, according to Dilthey in (Rickman, 1976).   It is this "inner reality" of the developing leader that is liberated in a transdisciplinary learning methodology.   The research is phenomenological in that it is based on observation and introspection, but does not occupy itself with testing (Johannessen, 2005).

It is proposed that in the context of this research the links between postmodernism, complexity theory, social constructivism and transdisciplinarity are that postmodernism provides the context, complexity theory the empirical platform, social constructivism the research paradigm and transdisciplinarity emerges as a methodology that sits well within these parameters. This approach is in concert with the recent emergence of critical management studies which adopts a critical or questioning approach to traditional concerns of management studies (Grey and Willmott, 2005).

1.4   Delimitations

Research sites comprised MBA programmes in South Africa, the United Kingdom and the United States.   Thus the study was not limited to one socio-cultural paradigm but examined the nature of post-graduate business education in South Africa and in the western world.   The notion of transdisciplinarity is focussed on and clearly distinguished from cross-disciplinarity, inter-disciplinarity and multi-disciplinarity.   The notion of postmodernism and complexity theory is applicable only, in terms of this research, to the domain of leaders in organizations.

1.5   Definition of Terms

The key concepts of study are transdisciplinarity and the postmodern context and these are defined as follows :

1.5.1   Transdisciplinarity

It should be noted that transdisciplinarity is essentially an interdisciplinary methodology. Shafritz, Koeppe and Soper (1988) define multidisciplinary learning as involving several different professional areas, though not necessarily in an integrated manner.   Rowntree (1982) defines interdisciplinary learning in a similar fashion but focuses on the interaction between disciplines that should result in a perspective as a result of being exposed to the perceptions of individuals from a number of different disciplines.

Thompson Klein's (2004) description of transdisciplinarity is utilised as the focus of this study. This is because it reflects the most recent advances in thinking in the area of transdisciplinarity and secondly, because Thompson-Klein's notion of transdisciplinarity is applied in the organization setting, where managers and leaders operate.   The notable element of this definition is the generation of new knowledge and it is this generation of new knowledge that differentiates transdisciplinarity from inter, cross and multi disciplinarity where disciplines interact but no new knowledge is generated.   Inter-disciplinarity is a broad term used to describe problem solving communities who are representative of many different disciplines.   Inter, cross and multi disciplinarity, are often used interchangeably and refer to the act of joining two or more disciplines in problem solving, for example we might include medical, organizational and political representatives in discussing the problem of HIV/Aids.   In this instance the different

disciplines interact in providing insights to the problem, but the boundaries between the disciplines remain intact. Inter-disciplinarity involves the interaction of many disciplines. The defining nature of transdisciplinarity is that is transgresses discipline boundaries, it dissolves boundaries and violates disciplinary rules. What emerges from a transdisciplinary process is very different from the inputs. The process of transdisciplinarity generates new knowledge through the interaction and engagement of various disciplines, whereas purely interdisciplinary engagements do not generate new knowledge, they use current theories and information and apply them to problems.

Thompson Klein's definition is as follows :

> The emergent quality of transdisciplinarity is that rational knowledge emerges not only from what we know but how we communicate it. Stakeholders enter into a process of negotiation, confronting knowledge from four (by example) kinds of knowledge in a series of encounters that allow representatives of each type to express their views and proposals. In the process a fifth type of knowledge progressively emerges. It is a kind of hybrid product, the result of "making sense together". Intersubjectivity is a critical element of transdisciplinarity and requires an on-going effort to create mutual understanding. (Thompson Klein 2004, p.4).

The notion of transdisciplinarity is synergistic with Gestalt theory in the sense that the end result is greater than the sum of its parts (Kelly, 1994).

Habermas (1979/1981), in advocating communicative action, a concept with strong synergies with transdisciplinarity, suggests that the following are indicators of a complex-informed pedagogy, appropriate in the postmodern context :

- Freedom to enter a discourse, check questionable claims, evaluate explanation and justifications
- Freedom to modify a given conceptual framework and alter norms;
- Mutual understanding between participants;

- Equal opportunity for dialogue that abides by the validity claims of truth, legitimacy, sincerity and comprehensibility, and recognises the legitimacy of each subject to participate in the dialogue as an autonomous and equal partner;

- Equal opportunity for discussion, and the achieved-negotiated-consensus resulting from discussion deriving from the force of the better argument alone, and not from the positional power of the participants;

- Exclusion of all motives except for the cooperative search for truth.

(Habermas, 1979/1981)

Given the similarities between Habermas's (ibid) model and the concept of transdisciplinarity, the above conditions were utilised in the class observations, as a means to detect the existence of a transdisciplinary methodology being applied in the teaching of MBA students. The expectation of the researcher was that there would be little evidence of transdisciplinary learning in the MBA classrooms, since the secondary data has suggested that linear, discipline-based learning methodologies are still the popular choice of most lecturers.

The concept of transdisciplinarity has emerged in tandem with the post-modern era in response to inadequacies in interdisciplinarity problem solving. It offers a solution in terms of responding to postmodern problems which are complex, fluid, ambiguous and unpredictable at best.

1.5.2   Postmodernism

A definition of postmodernism supposes a somewhat circular rationale as the nature of postmodernism is to proscribe rigid descriptions and rule structures. Many postmodern theorists cannot agree on a definition of the term. Harvey states that since the meaning of "modernism" is somewhat ambiguous, it follows that postmodernism is even more difficult to achieve consensus on (Harvey, 1990). What does seem to achieve consensus is that postmodernism has arisen as a result of social transformation in the latter half of the 20th Century (Lyotard, 1979). Lyotard states technology has largely been the catalyst that has precipitated this transformation. Huyssens (1984), in writing about postmodernism states that "....in an important sector of our culture there is a noticeable shift in sensibility, practices and discourse formations which distinguishes a post-modern set of assumptions, experiences and propositions

from that of a preceding period". A startling characteristic of postmodernism is defined by Harvey (ibid) as its "total acceptance of the ephemerality, fragmentation, discontinuity, and the chaos.....". Harvey (ibid) further describes the hallmarks of postmodernism as indeterminacy, "intense distrust of all universal or totalizing discourses" suggesting that general truths are repudiated and contextual truth, i.e. a temporal, context related truth is all that can be defended. In relation to postmodernism Rorty (1979) speaks of pragmatism in the philosophy of science, Kuhn (1962) and Feyerabend (1975) talk of a shift of ideas about the philosophy of science and (1972) emphasises discontinuity and "polymorphous correlations in place of simple or complex causality". Whereas the modern era attempted to create order out of these elements, the postmodern era dismisses the need for order and calls for flexibility, ambiguity and unpredictability to be embraced. (Klages, 2007).

1.5.3   Postmodernism in Organizations

Hussard and Parker (1993) argue postmodernism is a signifier of an historical periodization as well as a theoretical perspective. In the first use, postmodernism refers to an epoch where the post prefix is related to a number of other features of a post-modern society (e.g. post-Fordism, post-capitalism, post-industrialism). A theme associated with many of these is the social and economic structures reproduced since the industrial revolution are now fragmenting into diverse networks held together by information technology and postmodern sensibilities that emphasize complexity, flexibility and instability in organizations. In contrast, postmodernism as a theoretical perspective, focuses on its epistemology. Postmodern epistemology suggests that the world is constituted by our shared language and that we can only know the world through the particular forms of discourse our language creates.

Van Tonder (2004) offers a thorough description of postmodernism as a new historical period. It is described as a move from an industrial to a knowledge based society. The characteristics of a postmodern organizations are described as having an open-systems perspective of the environment, one which is constantly transforming and becoming more complex and unstable. Organisations are viewed by Van Tonder (ibid) as changing, non-linear, unpredictable, complex open systems.

Since this research finds its focus in organizations as the environment within which leaders work, the above application of postmodernism into that context necessitates that the research looks at complexity theory within a systemic environment.   The view of postmodernism as an epistemology requires attention to the discourse associated with post-graduate business education and leadership development.

1.5.4   Complexity Theory

Morrison (2008) connects education, philosophy and education philosophy in an interesting discourse on complexity within organizations.   A simplistic view of complexity theory is based on a systems view of organizations being open entities which survive through mechanisms of feedback, open systems, learning, adaptability, communication and emergence.   On a more complex level Morrison talks of the organization as a self organizing system which is autocatalytic (self changing) and demonstrates autopoiesis.   For Morrison the constant evolution of the system, in this case the school and in this research the organization and its environment, constantly evolve to higher and higher levels of complexity.   In his theoretical model feedback is the engine for transformation and relates to the adaptive capability of the system to its environmental challenges which ensures its survival.   Connectedness demonstrates the interdependability of all parts of the system and reminds us of the interdependent nature of transdisciplinary groups.   Morrison speaks of the quality of emergence which does not evolve according to some central grand design, but is rather an antithesis of control and predictability. Here we notice the nuances of compatibility with the postmodern paradigm.   Another term common to the language of postmodernism is chaos – Morrison says that complexity "resides at the edge of chaos" that is at the point where the system threatens to collapse, the point of complete unpredictability, (Morrison, 2008, p. 21)

Order is not imposed, it emerges in an unpredictable manner.   According to Morrison :

> The closer one moves towards the edge of chaos, the more creative, open-
> ended, imaginative, diverse, and rich are the behaviours, ideas and practices
> of individuals and systems, and the greater is the connectivity, networking
> and information sharing between participants.   (Morrison, 2008, p. 22)

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The above quotation illustrates the open complex environment of postmodern organizations and the networking between people and the element of rich diversity is reminiscent of a context where transdisciplinarity can serve as an effective platform for creative decision making such as is needed in changing and unpredictable environments.

1.5.5   Andragogy

Andragogy was a term first coined in 1833 by Alexander Kapp, a German educationalist (Davenport and Davenport, 1985).   It later was discarded due to discontent with the term, in the early 1920's. It is a term that has been widely accepted in America for the last 15 years.   It was re-introduced by Knowles (1970) in a study undertaken in regard to adult education.   He defines andragogy as the art and science of helping adults learn, as opposed to pedagogy which relates to learning in children.

Knowles' (ibid) theory was based on four premises that differentiated adult learning from the way that children learn.   These are :

As a person matures the self-concept moves from dependency to self-direction.

Maturity brings an accumulating reservoir of experience that becomes an increasing resource for learning.

As the person matures, readiness to learn becomes increasingly orientated towards the person's social roles.

As the person matures the orientation towards learning becomes less subject-centred and increasingly problem-centred.

(Knowles, 1970, p.39)

Andragogy is a term that has had its fair share of criticism and debate.   For the purpose of this research, the term andragogy was considered to be suitable since the study focuses on MBA teaching and learning, which is directed at adult learners.

1.5.6   Leadership Development

It is important to note here that this research concerns itself with leadership development, not leadership in action.   Leadership capability would however be the natural outcome of a leadership development process so the two concepts are inextricably linked.   One must essentially know the nature of what one is aiming for in a leadership development program, i.e. leadership effectiveness, in order to put the correct leadership development process in place. For example Rapley (2007, p.22) defines the outcomes of leadership as being crucial to the development process.   He argues that direction, alignment and commitment are the essential outcomes of leadership and therefore, in this instance, these components of leadership would need to inform the leadership development process.

For the purpose of this research, leadership development is defined as a process which includes training and relationship which are enriched by incorporating the elements of assessment, challenge and support.   It is a process significantly influenced by context (Van Velsor, McCauley and Ruder , 2010. p.5).   In this research, leadership development is studied within the context of the MBA program.   Van Velsor et al., describe the leadership development process as one which requires a variety of different experiences which are supported by the individual's ability to learn, which is a "complex combination of motivational factors, personality factors and learning tactics."   They note that there are significant differences in the manner in which individuals respond to learning experiences.

1.6   Contribution and Significance of the Research

Despite continued criticism of the failures of MBA education, particularly in developing leaders for the 21st century, there have been fewer efforts to offer alternative approaches (Coetzee, 2009; Bennis and O'Toole, 2005; Dertouzos, Lester and Solow, 1989; Goshal, 2005; Mintzberg and Gosling, 2002; Pfeffer and Fong, 2002; Porter and McKibbin, 1988; Steiner and Wells, 2000). The significance of the proposed research is its intent to explore the possibility of a transdisciplinary approach to MBA education.   The contribution of a transdisciplinary learning methodology lies in its potential to address many of the problems and challenges raised by writers in the literature review, and the lecturers interviewed in the various schools.

The research outcomes offer a set of recommendations on how to exploit the value of a transdisciplinary andragogy in MBA education, , together with a set of implementation guidelines to address obstacles to its use. The present study is the first to systematically examine the applicability and value of a transdisciplinary approach to leadership development within MBA education.

1.7   Structure of the Thesis

The remainder of this thesis is structured as follows :

1.7.1   Chapter One : Introduction

This chapter provides the reader with the background and justification for the research. It is a discourse on the nature of transdisciplinarity and its links to the postmodern context. It also provides links in literature to criticisms and failures of MBA education in the development of leaders and suggests that the inclusion of a transdisciplinary methodology in MBA programs might go some way towards resolving the problems identified.

1.7.2. Chapter Two : Literature Review

This chapter provides a comprehensive review of the literature both core, classic or root theoretical paradigms as well as an overview, where appropriate of developments over time. The literature review also includes a thorough review of current, 21st Century writing on transdisciplinarity, the postmodern era and related topics which have shown symbiotic relationships with the principals inherent in transdisciplinarity. It also reviews relevant empirical studies of MBA education in business schools.

1.7.3. Chapter Three : Methodology

This chapter provides details on the research methodology, the research sample, research paradigms, questions and objectives as well as covering critical aspects such as validity, reliability and generalizability. Measurement methods and data collection protocols are also detailed in this chapter.

1.7.4. Chapter Four : Presentation of Results

This chapter presents the results of the study. General themes emanating from an analysis of the data are presented.

1.7.5. Chapter Five : Analysis of Results

This chapter provides an analysis of the results of the study, presented in Chapter Four and creates links between the evidence in the data, the extant literature and the research question.

1.7.6. Chapter Six : Conclusions and Recommendations

The conclusions summarize the main themes and outcomes of the research, tie the study back to the initial research objectives and literature, and make recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction to Transdisciplinarity Within the Postmodern Context

The need for a new approach to developing leaders in the MBA classroom has come about as a result of an increasing complex environment.   Current discipline-based learning methodologies do not allow for the incorporation of complexity into the learning process.   They reflect a structured and predictable world, which is not the nature of the postmodern context.

This chapter examines the nature and process of transdisciplinarity within the postmodern context.   It is juxtaposed against other postmodern philosophies and learning paradigms in order to identify synergies.   In other words, what the concepts of socio-cultural constructivism, complexity theory, systems theory, autopoiesis, critical management theory and postmodernism reveal, is that learning methodologies with strong synergies with transdisciplinary learning, have been written about for some time now.   Therefore the concepts central to transdisciplinary learning are not new. However, what is new to this research is the incorporation of transdisciplinary learning within the context of postmodern leadership development.

Criticism of leadership development methodology, as it occurs in university business schools, is examined and put forward as a basis for the need for change in leadership andragogy.   The silo'd, discipline-based, hierarchical approach to the development of leaders, common in universities and business schools across the world, is criticized in terms of its limitations in preparing leaders for a postmodern context.   The postmodern context and complexity theory are examined in terms of their relationship to transdisciplinary learning.

It will be seen in the discourse that follows that transdisciplinarity is a concept, and a learning andragogy, that is compatible with the emergence of complexity in the 21st Century.   As an

introduction to the concept of transdisciplinarity, the history of the emergence of complexity is be examined. This history shows the generations of complexity theory as discussed by Aldaheff-Jones (2008) and how transformations in the environment were manifested in changes in the approach to complexity theory.

2.1.1. The Emergence of Complexity in the 21st Century

In order to gain an understanding of the postmodern context and the complex, unpredictable world in which today's leaders operate, it is necessary to gain an understanding of how this complexity developed. This is the aim of this section.

Secondary research suggests that the first mention of complexity was around the emergence of Gestalt theory in the early 1900's (Wertheimer, 1924) which was linked to complexity. This was followed in the 1940's by what Aldaheff-Jones (ibid) calls the "First Generation" complexity theorists and in the 1950's by the "Second Generation". These two decades saw the appropriation of the concept of complexity by the scientific community. Weaver (1948) spoke of "disorder as an integral part of natural phenomena". After the Second World War electronic computer devices were applied to mixed team approaches to operational analysis. New approaches to problem solving incorporated information, communication theories, automated neural network theories, cybernetics and operation analysis. Information theory contributed to explaining the phenomena of organized complexity, neural networks offered a powerful conceptual tool to represent a possible ontology of organized complexity grounded in information and automata theory, cybernetics introduced the concept of feedback to describe how a system adapts to its environment. Post war "operational research" focused on the development of algorithmns to tackle multi-dimensional decision processes involving uncertainty. The 1960's and 1970's saw the emergence of computer and engineering sciences. With the extension of telephone networks and large insurance companies, engineering and computer sciences were confronted with the difficulty of conceiving and controlling broad systems perceived as complex ones (Weaver, ibid) New generation computers and mathematical models (Ashby, 1956) and the notion of algorithmic complexity was established (Knuth, 1968). Management sciences and artificial intelligences were an extension of cybernetics to management science (Beer, 1959, 1970). The study of problems of organized

complexity took route in the emerging sciences of management decision making. The emergence of heuristic problem solving (Simon and Newell, 1958) was evident and artificial intelligence extended the use of computers to more complex problem solving. After prolific use of systems sciences in the 18th century and extensive criticism in the 19th century, systems theory emerged once again with cybernetics. Constructivist epistemology, especially social constructivism is a common theme in the literature on complexity in the latter half of the 20th century and the early part of the 21st century. Self organization and organismic development was developed by Gestalt psychologists to describe the way humans process experience (Fox Keller, 2004). Non-linear dynamics, as discussed by Prigogine and colleagues in the late 1960's, (Prigogine and Stengers, 1984) talked of dissipative structures and sparked a reconsideration of entropy. Non-linear systems were the catalyst in the emergence of "catastrophe" theory (Thom, 1975). Chaos theory, discussed in the early 1970's described systems so highly sensitive that change was unpredictable to the point of being random. The concept of fractals (Mandelbrot, 1983) was used at this time, as a metaphor for order within disorder and the non-linear dynamics of complexity. The development of mathematical and conceptual resources that enabled a revisiting of the relationships between fluctuation and stability, non-linearity and linearity, randomness and non-randomness, the study of non-linear dynamics helped provide a framework to describe the complexity of any morphogenesis (Morin, 1977) and (Dahan Dalmedico, 2004). The concept of evolutionary biology emerged as technological progress, cybernetics and self-organization challenged traditional approaches to biology. Evolution was revisited illuminating its chaotic nature (Gould and Eldredge, 1977). Autopoiesis (Maturana and Varela, 1992) provided new representations of adaptation, evolution, self autonomy and emergence. This research positioned the study of the evolution of life at the centre of the ensuing developments informing the understanding of complex phenomena.

The thinking of third generation complexity theorists whose research took place in the 1980's through to 2000 was predicated on acknowledgements that there were deep ambiguities within the notion of complexity (Ardoino, 1963, 1999; Ardoino and De Peretti, 1998; Morin, 2000). Ardoino (2000) viewed complexity as "a pathological, dense, entangled dimension". Third generation theorists responded to this in two directions. The English speaking field of research studied complex adaptive systems, that is, non-linear dynamics, evolutionary biology and

artificial intelligence whilst the Latin countries focused on a reflexive dimension that aims to employ an open, perhaps more radical agenda to explore new ways of representing multiple complexities and "that promotes an epistemology driven by the will of scientists to determine, conceive and construct the rules of their own action, including ethical ones".   According to Le Moigne organizational complexity was rarely scientifically investigated in the period between 1945 and 1975 and the term "complexity" was seldom used (Le Moigne, 1996).   Books in the 1970's contributed to the new wave of epistemological and conceptual research (University of the United Nations, 1986).   Morin's research during the 1970's and 1980's, up to 1991 developed an approach that involved a re-organization of the various conceptions of complexity from the 1940's.   He developed a critique of various complexity models and located his own focus on philosophy, physics, biology and human sciences (Morin, 1977).

Laszlo (2006), a Hungarian philosopher of science and systems theorist, discusses the notion of bifurcation in his discussion on sustainability and the nature of change, and offers a way forward in terms of the current postmodern crisis. He says that given the current crisis evident in demography, resource consumption, militarization, life-style and wealth disparities, and the crisis in the environment, the world is no longer sustainable.   We have reached a bifurcation point, a split or fork, a tipping point, where evolutionary change is inevitable in order to prevent a complete breakdown of the global system.   He calls on the theory of complexity and chaos theory to explain this.   Laszlo believes that the solution for sustainability lies in the ability to utilize enhanced information processing capacity, greater efficiency in the use of free energy and greater flexibility, higher structural complexity and additional levels of organization.   In short he believes that the world needs to use its current resources to take it to a new level of complexity.   He claims that "extrapolating existing trends does not help in defining the emerging world".   He explains that because of the failure of our current systems and resources, the "dynamic of development that will apply to our future is not the linear dynamic of classical extrapolation but the nonlinear chaos dynamic of complex system evolution". By this he infers that current problems will not be resolved by tried and tested, linear processes of the past….he believes that the way beyond today's crises lies in evolutionary transformation.   The aforegoing discussion shows how the world has evolved from the early 1900's through to today, in a non-linear fashion, starting from simple systems theory and evolving into notions of chaos,

turbulence, unpredictability and constant change.   This is the world that our postmodern leaders need to be prepared for.

2.1.2   Transdisciplinarity within the Context of Complexity

Since this research offers the notion of transdisciplinary learning as a solution to preparing leaders for the complexity of the postmodern world, some attention needs to be given what transdisciplinarity is and how this will contribute to a more suitable postmodern andragogy for leadership development.

It shall be seen from what follows, that it is clear that transdisciplinarity emerged in response to the emergence of complexity.   Linear models of problem-solving were found to be inadequate in responding to complex real-world problems.   Transdisciplinarity provides a platform for the resolution of complex postmodern problems affecting leaders across the globe.

Morin (1977/1980) and Piaget (in Jantsch, 1972) together with Jantsch are attributed with the first mention of transdisciplinarity in the 1970's.   The aforegoing historical background which traces the emergence of complexity reflects the condition that necessitated the emergence of theories such as transdisciplinarity to support the resolution of complex problem solving within that postmodern context.   (Jantsch, 1972; Morin, 1980)

Basarab Nicolescu, who could be referred to as the "father" of transdisciplinarity in that he was the first to research and to write prolifically on the subject, writes primarily from an humanistic and philosophical perspective. (Nicolescu, 2002).   He wrote a manifesto of transdisciplinarity which talks of powerful catalysts of change in the postmodern world that reflect a potential for self destruction on three levels, that is, material, biological and spiritual destruction.   He claims that the "Age of Reason" is more irrational than ever.   Nuclear weapons have the potential to destroy the entire earth, the ability to modify genetics has a potential destructive effect on the nature of humanity – he warns that we are in the process of intervening at the very depths of our biological being whilst not having advanced at all on great metaphysical questions.   The emergence of the global village resulting from technological advances such as the ability to travel at the speed of light, he says, has reduced the size of the earth to "the centre of our

consciousness".   The opportunity that technology has provided to create virtual realities and for the manipulation of consciousness is frightening in terms of its ability to destroy current perspectives of spirituality.   Nicolescu points out the proliferation of paradox, and states that whilst we have the potential for self destruction, we also have the potential for new life, positive change supported by the careful management of the exponential growth of knowledge.   He acknowledges that at this point in time, we do not know which way the balance will fall. Nicolescu (ibid) believed that transdisciplinarity was the only approach that would allow for the resolution of complex problems at multiple levels.   He saw reality as multidimensional and embraced the theorem of Godel which states that a sufficiently rich system of axioms must lead to results that are indecisive or contradictory.   Nicolescu (ibid) believed that this richness of entities or levels was an appropriate truism for the postmodern world.   He viewed transdisciplinarity from a philosophical perspective on a macro level of society.

One of the key characterizing elements of complexity in the 21st century is the existence of paradox.   We noted above Nicolescu's (ibid) acknowledgement of paradox as an inherent factor in complexity and transdisciplinarity.   The existence of paradoxical situations is consistent with postmodern complexity.   Aram (1989) has described the nature of the business and society field as "a paradox of interdependent relations".   Calton and Payne (2003) define paradox as seemingly contradictory terms which are inextricably intertwined and that the resolution of these paradoxical situations hopes to learned from the cognitive tension contained within.   The study conducted by Calton and Payne (ibid) which utilized a multistakeholder approach to resolving "messy problems" has significant synergies with a transdisciplinary approach.   They argue that complex paradoxical situations can be resolved by gained shared insights "via an interactive, developmental, exploratory sensemaking process that can inform the governance of stakeholder networks".   They coined the term multistakeholder learning dialogues (MSLD's) as a means for the resolution of "messy problems" and the construction of meaning in multidisciplinary problem solving groups. These MSLD's are reminiscent of the importance of interdisciplinary dialogue which is a key characteristic of transdisciplinarity.   Ramadier (2004) takes an in-depth look at the knowledge generating process of transdisciplinarity and argues that the resolution of paradox is the process of articulating several disciplines and by doing so, creating coherence amongst several levels of reality.   He sees transdisciplinarity as a process of articulation and

deconstruction that is based on paradox, conflict and coherence.   It is clear then, from these theorists, that they regard paradox as an integral part of complexity and that they see value in the process of transdisciplinarity in grappling with paradox.

The aforegoing discourse gives some background to the role of transdisciplinarity within the context of complexity. The notion of paradox as a consistent characteristic of postmodern complexity has been examined.   What follows, is a further discussion on the postmodern era, as it is envisaged by the key theorists who have written and researched in that domain, with specific reference to Mode 2 knowledge and its synergies with transdisciplinary learning.

2.1.3   Postmodernism and Mode 2 Knowledge

Calton and Payne (2003) describe the postmodern era as characterized by turbulence, chaos, complexity and paradoxical situations.   Some examples of postmodern issues stem from technological innovations such as the cloning of human embryos, global warming, the use of stem cells to grow human parts and messy problems that cannot be resolved by reductionist problem solving processes that separate facts from values.   Ambiguity, complexity, turbulence and paradox, as can be seen from the aforegoing discussion, are inherent parts of postmodernism.

Gibbons, Limoges, Nowotony, Schwartzman, Scott and Trow (1994) discuss transdisciplinarity and Mode 2 knowledge production as interchangeable entities and elaborate on the transient nature of the knowledge produced as being knowledge of interest to its "owners" and driven by specific needs and applications.   It follows then that such knowledge is temporal in the sense that it adds value only to the situation that it addresses and would have little generalisability. These notions of temporariness and lack of generalizability are typical of the nature of transdisciplinarity.   Therefore studies on Mode 2 knowledge are useful in terms of lending support to the concept of transdisciplinarity as a postmodern methodology.   Gibbons et al., (ibid) describe Mode 2 knowledge as being generated from a particular context, and as often having the characteristic of transdisciplinarity. They describe the Mode 2 process as being a "constant flow between the theoretical and the applied, between the theoretical and the practical".   Van Aken (2001) describes Mode 1 knowledge as description driven and problem-

focussed, whereas Mode 2 knowledge is characterized by an "intensive interaction between knowledge production and application and application is much more solution-focussed, design-oriented and much more prescription driven" (i.e. algorithmic prescriptions which relate to if you want to achieve Y, then what is the action to be taken (X)?. Horlick Jones and Sime (2004) describe the epistemology of transdisciplinarity as involving an "integration of knowledge". These authors expand on the notion of temporal knowledge by suggesting that discipline-based enquiry tends to be somewhat reductionistic, universal and generalizable. It is for this reason that disciplinary enquiry is found wanting in relation to "real world problems" which are complex and transient and require solutions that target problems in real time. Solutions may be relevant only for that particular context and not necessarily generalizable to the future. This type of scenario is predicated by the fast rate of change and transformation which is characteristic of the postmodern context, or the latter half of the 20th Century. Choi and Pak (2007) describe the context of transdisciplinarity using semantics synergistic with the description of postmodern problems, that is "when the dividing line between one problem and another is blurred, when the scope is global or subatomic, when there are many contributing factors, some unknown, some human and some culturally dependent". They describe the nature of problem solving in this context as requiring a team approach which demands that people engage comfortably in "informed ignorance" in order to improve understanding. These authors define multidisciplinarity as "drawing on a number of specializations" and interdisciplinarity as "linking several areas". There does not appear to be a clear distinction between these two entities and "drawing on" and "linking" can be seen as the same thing. They define transdisciplinarity as a process that "erases disciplinary boundaries altogether" which could imply the production of new knowledge, but they do not specifically say this. These different interpretations of the nature of transdisciplinarity reveal a need for a more rigorous demarcation of the domain of transdisciplinary process.

2.1.4   Transdisciplinarity and Education

With Nicolescu's (1997) vision of transdisciplinarity in mind, the application of a transdisciplinary andragogy to leadership development, as is the objective of this study, necessitates that we examine the implications of a transdisciplinary philosophy for education. Within this complex, somewhat ambiguous and paradoxical context, Nicolescu (ibid) advocates

the four pillars of learning discussed in a report of the International Commission of Education for the 21st Century contained in the Delors Report. These four pillars reveal a new kind of education and relate learning to know, learning to do, learning to live together and learning to be. Nicolescu (ibid) talks of the contribution that transdisciplinary learning can make to this new model of education. In terms of learning to know he emphasizes the characteristic of questioning and the refusal to accept all "a priori answers" inherent in the concept of transdisciplinary learning. He refers to the connecting nature of transdisciplinarity in that it builds bridges not only between disciplines but between the external and internal capacities of the individual. Here he refers to the ability of individuals to correlate their internal perspectives with their external perspectives through a process of engagement with a diverse and complex environment. He values the complementarity between the disciplinary and transdisciplinary approach because this will result in "connected beings who are able to adapt themselves to the changing exigencies of professional life, and who are endowed with a permanent flexibility that is always oriented toward the actualization of their interior abilities". He refers to the "debilitating alienation" that will inevitably result from an individual's attempt to remain constrained in one discipline within a world that reflects constant tumultuous change and information revolution. This self actualization and relinquishing of the human creative spirit is what Nicolescu (ibid) thinks supports the notion of "learning to do". The emergence into complexity irradicates boredom and the inoptimal utilization of human capability, the undoing of social and organization hierarchies supports integration and Gestalt forms of knowledge production that produce more than the sum of their parts. Rigid and formal structures are replaced in the transdisciplinary paradigm by a fluid and flexible co-operation that releases human potential and creativity. In learning to live together Nicolescu (ibid) goes beyond the concept of living harmoniously amidst diversity and claims that the fundamental aspect of transdisciplinary learning is to "recognise oneself in the face of the Other". He calls this a state of "permanent apprenticeship" which starts early in life and is practiced throughout. This attitude allows us to develop a transcultural, transpolitical, transnational and transreligious nature that does not encounter antagonism in plurality. Lastly, in "learning to be", Nicolescu extends this concept of plurality when he says that learning to be involves understanding what it is that joins the subject and the object. He highlights the important nature of interrelationship and describes a metaphor of a roof extending over the four pillars. Just as in systems theory, if

one element (pillar) of the entity collapses, it will collapse the whole system.   Nicolescu (ibid) considers the notion of transrelationship to be the roof that connects the four pillars.   In closing this discussion on education and transdisciplinarity he quotes the poet Rene Daumal who advocates "an education that is addressed to the open totality of the human being, not to just one of the components" and states that this is the only defensible educational framework for a viable and integral education in a postmodern context.   In support, at the Locarno congress, Morin (ibid) urged that the knowledge of complexity will require a reform of the university.

In this chapter the intention is to explore learning methodology with the purpose of re-evaluating the usefulness of modern leadership development andragogy in the light of the leadership challenges of the postmodern era.   The complex challenges of leadership in the postmodern world, call for a degree of unlearning and relearning regarding our thinking about andragogy. The traditional classroom structure with a power base placed firmly in the hands of the facilitator seems heinous in a context where knowledge needs to be constantly generated in a changing world. Teachers and facilitators may have the advantage of prior knowledge, however, the focus must be on the generation of knowledge by the students utilizing the theory of the past as a basis but not placing limitations on the creative and spontaneous generation of innovative knowledge around leadership issues.   Students should actively engage with the literature and theoretical models in a critical and experiential manner – equality in power relationships between the taught and the teacher should support a mutual learning process.   Zeleza (2006) disputes the issue of European or Western domination in universities and their curricula and points out that universities had their origins in Islam and he argues that there is a need to uncover Africa's intellectual origins although he is not clear what or where these are.   He argues that contextual issues are critical for the development of an appropriate andragogy in the development of leaders.   He claims that the hegemony of the "colonial library" is extensively evident in postcolonial Africa and that it dominates disciplinary and interdisciplinary discourses, departments, paradigms and publications.

The difference between knowing and understanding is a central theme in Songca's (ibid) work. Knowing is a static entity whilst the application of knowledge requires understanding.   She says that knowing is not the same as understanding.   Traditional classroom power relations and teaching methods focus on the acquisition of knowledge, not on understanding, given its primary

focus on the classroom experience and the lack of transference of learning from that domain into the students' everyday life, both in the personal context and in the work environment. Students are conditioned to leave the responsibility for learning with the teacher; they need to be re-conditioned to bear the responsibility for their own acquisition of knowledge since the application of this knowledge will be unique in each individual context, a context the teacher cannot be expected to have any knowledge of. Understanding requires the complete engagement of the student with the object of study – the process of exploration and the subsequent integration of the student and the object is what allows for understanding to emerge. Understanding requires that the student becomes a part of the knowledge acquisition. Songca uses the human phenomena of love to explain what she means – she says that one can know what love is, but only understand when one has been "in love". Songca says that we need to deconstruct and reformulate traditional knowledge – concepts close to those of Wink's (2000) unlearning and relearning and echoed in the critical theorists notion of deconstruction. In regard to learning in Africa, Songca refers to the imposition of learning structures aligned with colonial systems and argues that Africans need a learning renaissance that enlightens themselves about who they are and what they lost as a result of slavery and colonization. They should challenge current learning methodologies and tools in the light of the value they add in their life experiences and they should also examine the value systems which underpin them. In bringing all these dynamics into a learning framework Soncga is an advocate of the transdisciplinary approach. The implication is that transdisciplinary learning relinquishes the student from the imposition of any doctrine embedded in the learning methodology. The researcher, whilst acknowledging the value of this, questions whether it is realistically possible to develop and implement a completely objective andragogy completely free of influence of the developer. Perhaps we can at least try to minimize the subjectivity and the transdisciplinary process might offer us a way to go about this.

Stauffacher, et al. (2006), European theorists writing from a socio-cultural constructivist approach, discuss global changes in the economy, and the socio-cultural domain and how this must of necessity change university education. The nature of change they highlight is that commonly associated with the postmodern context, that is, increased complexity, connectedness and speed of transformation. They discuss some key developments firstly that to remain sustainable in the modern context requires an ongoing enquiry into the efficient use of resources

in order to keep systems in equilibrium. They also highlight the inadequacy of conventional approaches to addressing political and cultural issues particularly in regard to sustainable development. Globalization, they say extends the scale of problems and introduces complexity and uncertainty. Traditional democracy, they claim, has been replaced by governance, an interactive process where concerned stakeholders engage in cross-scale, multi-level problem solving, a process that clearly has synergies with transdisciplinarity. Lastly, they see contemporary society as reflexive and that both problems and solutions can be the focus of scientific enquiry. These authors then expand on the implications of the above for teaching at university level. They delineate three domains in which challenges occur. These are the subject area, the domain of the social context and the process domain. The subject area is no longer clearly defined, learning needs to take place in interactive multi-disciplinary teams and the outcomes are not linear nor can they be pre-defined by the teacher. The role of the teacher changes to a process manager, rather than the expert. The context of learning is social consisting of actors from different disciplines who collaborate across blurred borders and reality is replaced by a constructivist view as knowledge is produced or constructed through a transdisciplinary process. The authors view the process as transdisciplinary in terms of the social context wherein teachers, students and stakeholders form a community within which specific learning process can take place (Stauffacher, Walter, Lang, Wiek, and Scholz, 2006). Tynjala et al. (2003) provide a neat vignette of transdisciplinary learning within the socio-cultural approach by saying :

> Responsibility is shared amongst the stakeholders, but the student has a key role in determining his or her own needs and aspirations. It also increases value conflict both within and across stakeholder institutions, exposing differences in expectation and experiences….A traditional control-oriented system in which student learning is predetermined by the academic staff and subject boundaries does not work.

Transdisciplinarity, as can be seen from the above discourse, is a social process where interacting individuals need to engage in a complex process of problem solving. Therefore the ability to be able to understand each other, to listen actively and to communicate effectively is predicted on their ability to use language in an optimal fashion.

If, as Laszlo (2006) claims earlier in this chapter, the world has reached a bifurcation point where evolutionary change is inevitable to avoid disaster, then the world of education is surely not going to be exempt from this transformation. Laszlo (ibid) argues that bifurcations are all encompassing, they are macro events which embrace the entire global entity. They embrace economic, political, social, cultural elements of the global order. If business educators, as providers of individuals who, as emerging leaders, will shape society, the economy, the political structures and almost every element of organization in the world, do not embrace this radical innovation, it is possible that they will risk losing their credibility. Even more significantly, failure to respond to the need for change may result in the destabilization of business education. This will have extremely destructive implications for the sustainability of business and organizations of all types across the world. The lessons learned from Songa, Zezela, Stauffacher et. al. (2006) and Tynjala, et.al. (2003) serve to enrich the discussion on the nature of transdisciplinarity and how it can be applied in a learning context.

2.1.5   The Role of Dialogue in Transdisciplinary Learning

In a methodology that emphasizes oral engagement and interaction in transdisciplinary learning, clearly language and communication are critical issues. Thompson Klein (2001) states that language is an important element in rhetorical and hermeneutical skills as well as communication dynamics in teamwork. Schon (1987) observes that in any interdisciplinary approach the specialist must be open to dialogue across and between disciplines. Clearly the need to understand one another is important in order to generate contextual knowledge.

The issues around dialogue and language are themes which consistently emerge in the research around pedagogy for a postmodern era. Songca (2006) emphasizes the importance of dialogue and language as communication skills critical to transdisciplinarity in order to provide a shared language and to support effective engagement in a dialogue which can allow the student to engage in a conversation where issues are analyzed, perspectives shared and where new knowledge can emerge. Wink (2000), in her discourse on critical pedagogy, goes into some depth in illuminating the value of discourse in learning, highlighting the importance of the growth of confidence in the learners as they begin their discussion with some trepidation but as the process gathers momentum they begin to perceive the value that they have to add and they begin to enjoy the process of sharing and growing knowledge. She also points to the manner

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in which the shape and form of the problem evolves through the discourse and brings the issues into sharper focus, at the same time allowing for creativity in perceptions and the generation of solutions. In synergy, Freire (2006) talks of critical dialogue, thought and action which allows learners to transform themselves and "their relationship to a larger society". Not only is dialogue important in this kind of learning pedagogy but the art of listening with empathy is an essential skill which underpins the ability for people to understand each other's unique perceptual framework. The ability to transverse diversity and to develop a cultural hybrid which respects the rights of all individuals cannot come about without turning listening into an art form. Mezirow (1990) argues that dialogue is essential when the purpose is to understand the validity in the contribution of others and to validate our own thinking. Raelin (2002, p. 69) asserts

> ..top managers may also crave the opportunity to share their insights, questions and even failures with others, if given a climate receptive to open discourse. Indeed, they might appreciate an opportunity to replay their plans and actions in front of like-minded colleagues who are not assembled to take advantage politically of their faults, but who want to help. They realize that they, too, need the understanding of others.

Further evidence of the importance of language and dialogue in transdisciplinary learning is found in the following quotation:

> Cognition is mediated by social interaction and cultural practice and language, literacy and discourse are both tools and products of cognitive, social and cultural practice. (Scribner & Cole, 1981; Vygotsky, 1978) in (Moje, Collazo and Carrillo, 2001, p.460)

Bohm (1991) a physicist whose contribution to science was in the domain of quantum theory, takes the notion of dialogue to a deeper theoretical level. Bohm's thinking provides the link between dialogue and the solving of complex problems, as would be typical of the world of the postmodern leader. Together with his colleagues he wrote an article about dialogue and its contribution to problem solving in a complex world (Bohm, Factor and Garrett (1991)). These authors provide an important distinction between discussion and dialogue, differentiating the

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latter as an art form which takes the action of communication to a much higher level and which allows a level of creativity, innovation and insight that is not normally available to people engaged in simple conversations and discussions.

The diagram below clearly sets their thinking in regard to the important differences between discussion and dialogue.

Dialogue	Discussion
Starts with listening	Starts with speaking
Is about speaking with	Is about speaking to
Focuses on insights	Focuses on differences
Is collaborative	Is adversarial
Generates Ideas	Generates conflict
Encourages Reflection	Encourages quick thinking
Encourages emergence	Encourages lock-in

Table 2.1 : Bohm. Factor and Garrett's (1991) Distinction Between Discussion and Dialogue

In expounding on what dialogue is not, these theorists exclude the notion of debate and discussion from the concept of dialogue. Discussion they say, as its name implies involves a process of "breaking things up" and debate is a goal focused process whose outcome and objective is to establish one prevailing truth. Dialogue is also not frivolous in its nature, it does not aim to entertain or exchange superficial information. Dialogue, they say, is more than simple interaction, it is a context where people are not opposing each other, they are in a process of mutual exploration. In connecting the notion of dialogue with the postmodern context, these authors argue that it is a way of exploring the roots of many crises that humanity faces today. The role of reflection is critical to the manner in which these problems are explored in Bohm et al.'s notion of dialogue.   These authors argue that reflection within the dialogue space, creates an awareness around individual thoughts and allows for exposure and reflection on these thoughts within a community of thinkers.   The process reveals perceptive differences and offers an opportunity for reflection on these differences.   All the aforegoing provide rich material for

the resolution of novel, complex problem situations. An enlightening metaphor created by the word dialogue is provided by the authors. "Dia" means "through" and "logos" means "the word", thus the metaphor invokes an imagery of a river flowing around and through the people, sharing knowledge, insights and perceptions. Bohm et al. (ibid) speak of a need to slow down thinking in order to achieve a deep level of reflection. The emphasis on the role of thought is critical for Bohm and his colleagues. They see dialogue as an opportunity for "thought and feeling to play freely" in a process of generating deeper or more general meaning; they talk of how dialogue can reveal the impact of society on individuals and communities and how, for example, power exerts an influence in these kinds of interactions. In parallel, Gunnlaugson (2007) talks of generative dialogue and of subtle processes which occur in thought processes. He identified two types of originating thought process as those which happen "downstream" and have to do with past events, current thinking and conditioned habits, and secondly of upstream thinking which has to do with new ways of thinking, embracing the opportunity to build new knowledge. This notion of "knowledge building" creates the link between the importance of dialogue in a transdisciplinary process. The two concepts of upstream and downstream thinking are integral to Scharmer's (2001) model of generative dialogue. Bohm et al. (ibid) speak of the value of shared meanings that emanate from a dialogue process. The phenomenon of increased trust that is shared amongst the participants is significant in this research, given the importance given to trust in leadership. They see the dialogue process as being rare in our society, yet they believe that it is necessary in order to tackle the complexity of challenges in the postmodern society. They criticize goal focused, short term discussion and debate for excluding this depth of thinking. Clearly their message is that debate and discussion are superficial tools that have no value in resolving or reflecting on deeply profound issues that have a multi-faceted, interrelated nature.

The concept of critical reflection has emerged from an inventive approach to critical action learning (Trehan and Pedler, 2009).

The notion of critical reflection as key to problem solving is evident in the following quotation from Reynolds (1998, p. 183) :

Put simply, whereas critical reflection is the cornerstone of emancipatory approaches to education, reflection as a management learning concept is expressed primarily as a key element of problem solving.

Rigg and Trehan (2008) extend this notion by arguing that critical reflection "blends learning through experience with theoretical and technical learning to form new knowledge constructions and new behaviours or insights".   Critical reflection and the importance that these authors attach to it, reveal clear synergies with Bohm (ibid) regarding deep reflection in deep dialogue and its role in complex problem solving and learning.

Wilber's (1997) AQAL (All Quadrants, All Levels) model is a four quadrant model reflecting four fields of conversation. These are interior-individual experiences (subjective), exterior-individual behaviours (objective), interior-collective cultures (intersubjective) and exterior collective systems (interobjective). The model displays a vertical individual-collective axis and an horizontal interior-exterior axis. It depicts four types of conversation within these dynamics. Scharmer's (2001) work in generative dialogue, builds on previous models and has value in that it offers an organizationally relevant model for helping people engage in deeper and more complex dialogue in the resolution of complex problems. The vertical axis of the four quadrant model reflects a move from "re-enacting patterns of the past" through to "enacting emerging futures" and the horizontal axis reveals a move from a "primacy of parts" through to a "primacy of the whole".   These two dynamics are reflected in a movement from different types of dialogue, beginning with "talking nice", through "talking tough" in the re-enacting patterns of the past mode through to reflective and lastly generative dialogue in the "enacting emerging futures".   The talking nice and talking tough quadrants reflect an egocentric perspective and are caught up in the past and present where the method of interaction tend to be based in the principles of discussion and debate, being rule bound and objective driven.   Moving up the vertical axis into the top two quadrants makes a futurists move into reflective and generative dialogue.   Here the principles of postmodern thinking are more in evidence as things become slower, more reflective and open-ended. The inclusion of a reflective component in the model is significant, given the attention that reflection is being given in postmodern thinking, especially in regard to decision making and problem solving.   In reflective practice, "executives question

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mental models, understand the world from a systemic perspective, and develop personal mastery." (Roglio and Light, 2009, p. 157)   However, in the opinion of the researcher, the value of the model is inherent in the discussion that Scharmer (2001) takes the reader through, that relates to the transition from one quadrant to the next.   Here Scharmer (ibid) identifies some key concepts of dialogue that move the conversation on to deeper and more meaningful levels.   The implication is that if one can teach these concepts to leadership students, then we can impart useful knowledge in terms of assisting them to cope with complexity.   The first concept that Scharmer (ibid) discusses is that of suspension.   It is noted that the notion of suspension was also included in Bohmer et al.'s (1991) discourse on dialogue.   Suspension refers to the process of firstly, becoming aware of and secondly, placing on hold, one's own perspective and subjective judgements in order to listen to those of others.   In the first two quadrants of Scharmer's model, on the lower horizontal axis, the conversation is focused on individuals who wish to present their own thoughts, who believe that these are the right thoughts, and who engage in opposing interactions in order to justify their own position.   Bohmer et al. (1991) argue that suspension can allow individuals to see the deeper meanings underlying their thought processes and to sense the incoherence inherent in their position.   For Scharmer (ibid) suspension provides the shift above the time axis and moves the conversation from the lower level quadrants into the future perspective of reflection.   It does this by making groups aware of their predilection to base thinking on past and current knowledge and unexamined assumptions. Given the notion of turbulent change in the postmodern era, clearly decisions based on past and current knowledge would be problematic in terms of their relevance to future problems.   The second concept Scharmer shares which underpins the shift from reflection to generative dialogue, is borrowed from Varela (2000) and it is referred to as re-direction.   This is described by Varela as a re-direction of attention from one's own perspective, to the shared meaning that is emerging from the group.   On a deeper level Varela argues that the focus needs to be not on the objective knowledge, but the source of the mental processes.   It is not patently clear what Varela means by this latter comment however, if one views the process of re-direction on a broad level it appears to have to do with a movement away from self, away from an egocentric perspective, to that of a group perspective.   This group perspective will be one that is well informed by the merging of knowledge and reflection on different perspectives.   The last concept relating to shifts through the model has to do with the process of the group being

receptive to new meaning, knowledge and insights. This moves the group from the reflective through to the generative space. Here Scharmer (ibid) refers to the notion of presencing. This notion of presencing has been brought to bear in the work of Scharmer on leadership in the U shaped model depicting seven leadership capacities. Presencing, in terms of Scharmer (ibid)'s model on generative dialogue has to do with the creation of an awareness of what is emerging from the group and "allowing it to come into being through us" (Senge, Scharmer, Jaworski and Flowers (2004). This generative dialogue quadrant is where knowledge would "come into being", in other words where new knowledge would be generated. Since transdisciplinarity is defined as a knowledge generating process, a leadership andragogy that rested on this paradigm would, of necessity, have to support students in developing the art of dialogue in the generative dialogue space. Scharmer's (2003) model has the potential to add significant value to the development of a tuition model that would support this process.

It is noted that the work of Stalinski and Stalinksi (2007) takes the concepts and models of dialogue discussed above and unpacks these into a "Dialogue Kit" which provides a useful tool for the teaching of dialogue based on these theoretical models. It is not considered to be the purpose of this research to go into this level of applied detail, however, the utility of this document is acknowledged in further research, which would grapple with the development of practical curriculum in teaching the art of dialogue in embracing the complex, postmodern challenges of leadership.

In this analysis of the literature on dialogue, emanating from the 1990's to the present, it is difficult not to notice the interdisciplinary nature of the emergent theory. Knowledge has been drawn from psychology, quantum theory, business, sociology, spirituality, amongst others. Dialogue, as it is presented in this research, is thus a truly interdisciplinary concept.

The work of Bohm et al. (1991) referred to in the literature as the Bohmian dialogue which dominated between 1987 and 1996, the MIT dialogue project (Isaacs, 1993) and the models of Wilber (1997), Sharmer (2003) and Gunnlaugson (2007) have been examined for insights into what dialogue is and how it can be taught to emerging leaders. These theorists have produced useful models of dialogue through a process of exploration and building on each other's thinking.

Taking dialogue into the organizational context, in their discourse on the resolution of messy paradoxical problems Calton and Payne (2003) echo the work of Bohm (1991) and Scharmer (2003) and talk of a reflective managerial practice grounded in dialogue that facilitates a process whereby managers and stakeholders could consider their own perspectives and those of others value predispositions, but also the implicit rules that guide stakeholder interactions. Dialogue is inherent and integral to the movement along Scharmer's model of "Theory U: Leading From the Future as It Emerges". There are strong parallels between this leadership model and the four quadrants of generative dialogue discussed above. The concepts of suspending, re-directing and presencing which underpin shifts in the dialogue model, also support shifts along the U-shape in the leadership model. Scharmer (2008) writes of a blind spot in leadership that refers to the inability of traditional leaders to move from the egocentric place that is concerned with competition and based on the past, through to the space where they are open to the views of others and where they are prepared to allow something new to emerge within themselves though interaction with others. Isaacs (1999) claims that through a process of verbal engagement shared meanings are constructed and "relational responsibilities" are clarified. Weick (1995) reminds us that community conversations can create a link between talk and action through a process of making sense of complex paradoxical situations. Alvesson and Deetz (1996) further emphasize the importance of dialogue in multidisciplinary groups by suggestions that alternative ways of knowing are revealed in conversational journeys that enable scholars and practitioners "to engage and comprehend the different social realities constructed by participants in a stakeholder network". Language, as the mechanism in discourse, becomes the means of constructing meaning in a community context (Berger and Luckman, 1967).

In Chia and Holt's (2008) critique of the andragogy of modern business schools, they cite Aristotle's emphasis on the importance of rhetoric in being able to engage in an analytical discourse around truth and knowledge. This rhetorical engagement was, for this ancient Greek philosopher, embedded in the process of understanding contextual influences for example culture and negotiations in the context of cultural diversity. For Aristotle rhetoric places the debate or discourse in problem resolution into the public domain. It sets aside the emphasis on mathematical decision making models and engages the social element in problem solving. Dialogue, discourse and verbal engagement are central to the social notion of transdisciplinarity and also have parallels with the theoretical paradigms of postmodern theorists. The dialogue

models as well as the models of Scharmer (2003) that emphasize dialogue and reflection in a leadership development context, are very useful as they provide tools for incorporating dialogue into a transdisciplinary leadership development process.

2.2   A Modern Day Example of Postmodern Complexity

Complexity has been discussed thus far as a theoretical notion.   The following section will provide a modern, real world example of the kind of complex problem that leaders of today need to be able to grapple with.   This example showcases an extreme, unexpected, unprecedented occurrence in the global economy, which had dire, far reaching consequences for millions of people across the world.   The application of solutions from the past were useless in trying to respond since this event was entirely novel in financial and economic history.   Financial experts around the world struggled to grapple with a problem, the dimensions of which they had not encountered before and the solution for which, it seemed, was out of their grasp.   I am referring to the financial crises of 2008/2009 which is, to some extent, still with us.   The value of interdisciplinary processes and dialogue in resolving complex issues is highlighted.

At the time of undertaking this research the global credit crisis of 2008 had just emerged.   This example of a complex, postmodern issue is examined in order to find support for the theoretical paradigms discussed earlier, and especially for a transdisciplinary application in leadership development.

In a classic example of "speaking too soon" Schoemaker (2008) stated early in 2007 that America had regained much of its economic might, only a few months before the American economy crashed to unprecedented levels as preface to one of the worst recessions Americans had ever experienced.   However, in deference to the cautionary tones of this article, Schoemaker noted that the postmodern changes in the world of business driven by technological innovation, globalization, geopolitical turmoil, concerns about climate change and ideological schisms, the equilibrium that had settled in the American economy should not result in a complacence that ignored the need for change, particularly in business education and the development of postmodern leaders.

Sergeant (2008) in commenting on the credit crisis, notes the efficacy of an interdisciplinary approach to credit risk management by saying that the different risk disciplines work together

and that in companies where risks were managed in silos, there seems to have been a lot more problems than in companies where there was much more interaction between the different parts of the company (Sergeant, 2008). This statement entrenches the need for interdisciplinary methodologies in solving complex problems. More support for the need to engage the disciplines in problems solving in the context of the credit crisis comes from Horovitz (2008) who calls for a more effective credit processing model that could enhance the symbiosis between the risk manager and the trader/customer office. Sergeant (ibid) notes the systems effect in her statement that "you do have to look across the enterprise because if you reduce one risk you could easily be increasing another risk".

In emphasizing the need for people to engage in dialogue on matters of such complexity as risk management in the postmodern context, Sergeant notes that mathematical risk management models have got so complicated in order to cope with the unpredictability and complexity issues, that people now find it difficult to have a conversation about risk management. This statement implies that the complexity of mathematical models have become so specialist that they have created a dependency that cannot be handled by human beings, but that relies almost solely on complex mathematical models in computer technology. In spite of this the advent of the credit crisis is evidence that these models, however complex, are not providing the right guidance. Sergeant calls for a balance between quantitative methodology and good judgement made by thinking leaders. Supporting this criticism of a reliance on mathematical models, Woods Brinkley (2007) states that "ultimately…we find the limits of our models, which, at some level, are most often based on past trends and relationships. When unanticipated events arise, historical correlations break down." (Woods Brinkley, 2007). Horovitz (2008) shares his colleagues' concerns about mathematical modeling and states that "modeling for correlation dynamics and for loss given default is far from an exact science and has most recently been testing the predictive powers of some of the most robust portfolio models in the industry". Interestingly, Hayes and Abernathy (1980) predicted the problems with the reductionist approach cased on mathematical models almost 20 years ago in an article in the Harvard Business Review called "Managing our way to economic decline." Lascelles (2008) describes the unprecedented nature of the credit crisis as "it is probably no exaggeration to say that today's crisis in the financial markets presents risk management with its greatest challenge ever. Not only are conditions volatile to an unprecedented degree, but they are driven by the dangerous

and unpredictable forces of fear and mistrust.   Add to this the complexity of modern products and the untested nature of many of the institutions operating in it, and you have a world in which few of the traditional risk management techniques can be applied.".   Woods Brinkley (ibid) describes the unpredictability of the postmodern world by saying that "we live in a new age of unprecedented access to information and misinformation, a world of traditional media, new media and social networking where the facts are sometimes only part of the picture".   She quotes Sir Winston Churchill who said "A lie gets half-way around the world before the truth has a chance to get its pants on" and says that this needs to be updated in the context of the postmodern era to "fear in the financial and credit markets can get all the way around the world before the facts get their pants on."   This somewhat amusing quotation illustrates the speed of information flow in the 21st century and that not only information, but particularly misinformation, can influence markets and decisions and bring about related reactions, long before decision makers have the time to respond to it.   Given this scenario it is surely important that decision makers (leaders, in this example, in the financial world) spend time deliberating their resolutions, consulting with stakeholders and having in depth discussions in order to deliver well thought-out, quality solutions to problems given the damage that misinformation or inappropriate decision making can have on the credit environment.   A transdisciplinary process would set the scene for this kind of engagement.

These notions of misinformation and emotive responses to financial decisions are reflected in the theoretical stance of George Soros.   Soros (2008) a financier, philosopher and economist has, for many years, disputed traditional classical economic theory and argued for a model that caters for the complexity of the postmodern era.   Classical economic theory, which has traditionally been at the heart of financial and business models, operates from some important basic assumptions of predictability and certainty.   The key assumption of classical economic theory is perfect knowledge and the predictability of the market that forces exist that will always bring about equilibrium.   Classical economic theory relies on Newtonian logic and rationality and it is supported by complex mathematical models such as those discussed, and disputed, in the aforegoing discourse on risk management.   Soros argues that in the financial markets of today there is no such thing as perfect knowledge or perfect prediction and that markets do not always move towards equilibrium.   He argues that social events have a different structure to natural phenomena and that financial decisions and their resulting actions are essentially social events.

The classical models with their dependence on mathematics and physical science, appear to completely ignore the human elements in the behavior of the financial markets. Soros, on the other hand, argues that market participants, who include individuals and the monetary and fiscal authorities, influence the market by acting against a background of biased perceptions and misinformation. His theory of reflexivity involves a cognitive (rational) component and a manipulative (emotional) component, which he claims work in opposite directions and interfere with each other. He states "what participants lack in knowledge they make up for with guesswork based on experience, instinct, emotion, ritual or other misconceptions." This results in misjudgments and misperceptions that influence market prices. Soros claims that the current financial crisis represents a kind of tipping point where classical theory juxtaposed against misperception and imperfect knowledge has become unsustainable. Soros cites many examples of poor decision making leading up to the current crisis. These include the assumption that high interest rates would kick in after 2 years and restore returns to financiers; this did not happen. Ninja loans (no job, no income, no assets) were the order of the day based on the same assumptions. Ratings agencies grossly underestimated risk in these ninja loans and the concept of earning fees (on loans) without incurring risks encouraged lax and deceptive practice designed to maximize returns. This poor decision making appears to be the result of short term, unconsidered thinking that supported crisis decision making and it was the catalyst in the fall of the market and the resultant bankruptcies in financial institutions that marked the demise of the economic structure worldwide (Soros, 2008).

The complex and volatile nature of the 2008 credit crisis provides a classic example of a complex postmodern problem that emerging leaders will find themselves challenged with. The commentary above implies that a transdisciplinary process that would provide a space for interdisciplinary discussion and problem solving, that would generate new knowledge to apply to unanticipated and unprecedented events such as the credit crisis, would be an extremely valuable methodology to apply. Soros's (2008) call to acknowledge the fallible human element in decision making in financial markets also brings to mind the advantages of a transdisciplinary approach, which is socio-cultural in nature. The transdisciplinary approach would bring people together in knowledge generating collaborations which would support enhanced decision making as multiple expertise is pooled and the generation of contextually appropriate knowledge. Although the latter would not constitute perfect knowledge in the universal sense that the

classical theorists call for, it may well be contextually more adequate based on the collaboration of many market decision makers, than the short term, somewhat short sighted decision making of one individual perspective or one discipline. The heuristic approach to problem solving, inherent in transdisciplinary teams, is compatible with the need to engage with uncertainty, complexity and a lack of knowledge. The critical theorists clearly have a point in saying that there is a need for an evolution towards a more socio-politically appropriate solution.

Currie, Knights and Starkey (2010) debate the culpability of business schools in the financial crisis and state that many business schools, including are Harvard, are re-evaluating their approach in the light of the crisis. They describe the fact that most of the individuals implicated in the disasters of Wall Street were MBA graduates, as an "inconvenient truth".

2.3   The Nature of Transdisciplinarity

Given that the notion of transdisciplinarity is at the centre of this research, some attention is now given to the way in which it emerged as a concept in learning methodology, in tandem with the emergence of the postmodern era. The variety of ways that transdisciplinarity is defined or viewed, by various theorists is presented.

2.3.1   A History of Transdisciplinarity

In order to understand the emergence of a new concept, it is useful to study the reasons why and how it came into being. Bourguignon (1997) claims that Bohr (1955) was the first person to formulate the notion of transdisciplinarity, but that Piaget was responsible for coming up with the term itself. According to Ramadier (2004) the birthplace of transdisciplinarity was in France where the first centre for transdisciplinary studies was created in 1973 and headed by Friedmann, Moring and Barthes. The scientific work in this center tended to focus around sociology and it became CETSAH, that is, the Center for Transdisciplinary Research : Sociology, Anthropology, Semiology which is a research unit linked to the French National Council for Scientific Research emerged. CIRET, that is, the International Center for Transdisciplinary Research and Studies was established in 1987.

In discussing the nature of transdisciplinarity and in pursuing a definition thereof, it seems appropriate to highlight the writing of Nicolescu (2002), since he was the first theorist to attempt

to place transdisciplinarity in a theoretical domain by writing and publishing a Manifesto of Transdisciplinarity (Ramadier, 2004). This manifesto was adopted at the First World Congress of Transdisciplinarity in Portugal in November 1994. Nicolescu states that transdisciplinarity was first mentioned nearly three decades ago by learning theorists such as Jean Piaget, Edgar Morin and Erich Jantsch in a celebration of the transgression of disciplinary boundaries. According to Ramadier (ibid) CIRET organized an international congress in Locarno, Switzerland in 1997 on the theme, "Which University for Tomorrow? Towards a Transdisciplinary Evolution of the University". The purpose of this conference was to consider how to "instill complex and transdisciplinary thought into the structures and programs of the University of tomorrow" (Nicolescu, 1997). Ramadier (2004) in supporting the interaction between disciplines blames the compartmentalization of scientific activity and linear development for the springing up of many new disciplines, many of which now overlap. This has resulted in a need for interdisciplinary activity. He cites the example of environmental psychology which may involve psychology, sociology, geography and architecture, and of neuroscience, which may involve biology, psychology and computer science. He refers to the way in which the division of labour has hampered productive effort in organizations and likens this to the manner in which compartalization in science has compromised the ability to grapple with complex problems in the 21st century. Many authors propose that transdisciplinarity has emerged in the face of a need to address complex and socially relevant problems (Burger and Kamber, 2003; Thompson Klein, Grossenbacher-Mansuy, Haberli, Bill, Scholz and Welt, 2001). This link between transdisciplinarity and sustainable development is evident in the writings of a number of theorists (Blattel-Mink and Kastenhozl, 2005; Laws, Scholz, Shiroyama, Susskind, Suzuki and Weber, 2004; Meppem and Gill, 1998). Sustainable development is considered to be a dynamic characteristic of human environment systems (Scholz and Tietje, 2002) which is derived from systems approaches (Bossel, 2002).

Songca (2006) discusses three important factors critical to the success of transdisciplinarity in practice. The first, that of language and dialogue, have already been discussed. The others relate to an openness to the paradigms of thinking in other disciplines, a willingness to relinquish one's security of traditional ways of thinking in order to move towards the generation of new knowledge, tempered with the wisdoms of the insights and disciplines of others. Lastly, she talks about commitment and the courage to abandon. Commitment refers to a preparedness to

go ahead with a search for new knowledge.   The courage to abandon refers to the ability to relinquish the comfort and security of what we know has worked in the past and enter into a process of questioning which casts doubt on value systems, previously held convictions and perspectives in order to take knowledge generation into the new frontier of the postmodern world.   This concept of abandoning the old and taking on the new brings Wink's (2006) critical pedagogy to mind and her discourse on the notion of unlearning and relearning.   A possible flaw in Songca's work is the suggestions around method where she raises problems rather than guidelines as to how sound practical tools can be developed to support the application of transdisciplinarity in the learning environment.   Further possible issues that are likely to be a challenge in the application of transdisciplinarity are the need for collaboration and a team approach given the history of disciplines and the silo'd approach to the structure of academic institutions.

Not mentioned here is a solution to the tensions and resistance that are likely to occur as people move into this new paradigm where they are required to put their academic contribution in the public domain for scrutiny and possible dissection by a multitude of people from different disciplines.   This raises serious issues around an individual academic or an individual discipline's sense of security and their ability to control the quality and quantity of their outputs. Transdisciplinarity thus requires significant changes in the way universities are currently run on many levels.   This is transformation at the macro and micro levels and it will carry with it all the human conflict issues that all transformation initiatives are challenged with.

It would seem therefore that the roots of transdisciplinary thinking are way back towards the end of the modernist era, but the concept appears to have taken on a new importance with the emergence of complexity in the 21st century. In fact Ramadier (2004) claims that "complexity can only be approached through transdisciplinarity".   It is also clear that the concept of transdiciplinarity emerged from a university context and has remained associated with learning and scientific activity throughout.

2.3.2   Some Definitions of Transdisciplinarity

According to one of the founders of the notion of transdisciplinarity, Nicolescu, "transdisciplinary concerns that which is at once between the disciplines, across the different

disciplines and beyond all disciplines." (Nicolescu, 1996). The latter element of being "beyond" disciplines supports the notion of knowledge generation.

As indicated in the introduction Thompson Klein's (2004) description of transdisciplinarity is utilised as the focus of this study firstly because it incorporates recent advances in the study of transdisciplinarity and secondly because she applies this concept to the domain of the organization, specifically the postmodern organization. The notable element of this definition is the generation of new knowledge and it is this generation of new knowledge that differentiates transdisciplinarity from inter, cross and multi disciplinarity where disciplines interact but no new knowledge is generated. The defining nature of transdisciplinarity is that it transgresses discipline boundaries, it dissolves boundaries and violates disciplinary rules. What emerges from a transdisciplinary process is very different from the inputs. The process of transdisciplinarity generates new knowledge through the interaction and engagement of various disciplines, whereas purely interdisciplinary engagements do not generate new knowledge, they use current theories and information and apply them to problems.

Thompson Klein's (2004, p.4) definition is as follows :

> The emergent quality of transdisciplinarity is that rational knowledge emerges not only from what we know but how we communicate it. Stakeholders enter into a process of negotiation, confronting knowledge from four (by example) kinds of knowledge in a series of encounters that allow representatives of each type to express their views and proposals. In the process of fifth type of knowledge progressively emerges. It is a kind of hybrid product, the result of "making sense together". Intersubjectivity is a critical element of transdisciplinarity and requires an on-going effort to create mutual understanding.

For Ramadier (2004), transdisciplinary is about articulation between different branches of knowledge in order to explain the complexity of phenomena. This notion of articulation between disciplines is somewhat simplistic and limiting in the sense that articulation implies a connection or a link between entities, in this case disciplines, but that the nature of the articulating entities remains unchanged. There is no coalescence or fusion, which results in the

two entities taking on a different form through their interaction, as is implicit in Thompson-Klein's (2004) notion of transdisciplinarity as a knowledge generating mechanism through which new forms of knowledge emerge, from the interaction between the disciplines. Ramadier (ibid) posits a question around the interaction of two disciplines whose core concepts are fundamentally opposed. He cites the example of psychology and economics and the contradictory models of behavior in explaining mobility behavior. He responds to these notions of complexity by stating that interdisciplinary processes necessarily simplify reality and knowledge. This latter statement is considered to be a significant limitation to the notion of transdisciplinarity as a knowledge generating entity. Ramadier seems to grapple with the fusion of disciplines and prefers to remain in the safe area of articulation and separation. Ramadier's article is a complex one that attempts to take on the difficult task of naming exactly what the transdisciplinary process is by deconstructing concepts and processes to arrive at its essence. It is this process itself that makes Ramadier's article difficult to grasp and the writer believes that the reason for this is that his objective is to lay bare the workings of transdisciplinarity in true positivistic style in order to be able to reduce it to a set of transparent actions and processes to make it acceptable as a true science. This positivist approach to transdisciplinarity is antithetical to the nature of the concept of transdisciplinarity and to postmodernism itself. As was indicated earlier in relation to the process of trying to define postmodernity, transdisciplinarity, clearly a postmodern concept, has its value in its ambiguity and it metamorphic quality that enables it to adapt itself to context. In its essence it can only be defined on a contextual basis as it only has a reality in relation to a context. It is precisely this aspect of transdisciplinarity which establishes its utility in a dynamic, ambiguous and constantly changing postmodern era. Postmodernism and its knowledge generating bedfellow, transdisciplinarity, appear to recoil smartly from any attempt to pin them down to a fixed definition that would please the positive scientists. It is noted that both Nicolescu (2002) and Ramadier (ibid) refer to the notion that at the centre of transdisciplinary process is the attempt to resolve paradox, however, the approach between these two theorists differs fundamentally with Nicolescu (ibid) dismissing the utility of linear thinking and positivistic paradigms of knowledge production, whilst it appears that Ramadier, writing some 50 years later, attempts to apply this Newtonian way of thinking to an understanding of transdisciplinarity. He speaks of transdisciplinarity as being based on "controlled conflict generated by paradoxes". This notion

of control is an anathema to postmodern ontology. Ramadier's concepts of deconstruction, unity, articulation and the reductionistic nature of his argument, is compatible with the positivist school of thought. Although he does speak of holistic and systemic approaches, these notions appear to be part of an attempt to reject the undefinable and to pin down a defensible and static definition of transdisciplinary process.

2.3.3   Transdisciplinarity

The literature discusses a number of types of inter-disciplinary processes, namely multi-disciplinarity, inter-disciplinarity and transdisciplinarity. The following section attempts to define the specific nature of these concepts, and to highlight the unique qualities of transdisciplinarity.

According to Thompson Klein (2004) inter-disciplinarity is a broad term used to describe problem solving communities who are representative of many different disciplines. Inter, cross and multi disciplinarity, are often used interchangeably and refer to the act of joining two or more disciplines in problem solving, for example we might include medical, organizational and political representatives in discussing the problem of HIV/Aids. In this instance the different disciplines interact in providing insights to the problem, but the boundaries between the disciplines remain intact. Inter-disciplinarity involves the interaction of many disciplines.

Nicolescu (2002) points out that transdisciplinarity is often confused with multi-disciplinarity and inter-disciplinarity, however, he claims that the transgression of disciplinary boundaries referred to by Piaget, Morin and Jantsch in the 1970's and 1980's far surpassed the multi and interdisciplinary approaches. Thompson Klein (ibid) refers to this distinction between multi and interdisciplinary approaches by stating that transdisciplinarity is a process where stakeholders meet to combine inputs and in the process new knowledge emerges, a kind of "hybrid product" of the interdisciplinary inputs. She talks of a process of "making sense together" a process that is more than just co-ordinating inputs but a process that generates new mutual understanding and context specific knowledge . (Klein, 2001). Horlick-Jones and Sime (2004) in a discourse on the nomenclature of multi and transdisciplinarity suggest that the former relates to different disciplinary perspectives relating to the same entity. That is, there is co-

operation between the disciplines but the methodology of a discipline-based process remains intact. In a transdisciplinary process elements from various methodologies across disciplines are combined in a single approach. Their inputs and outputs are integrated across disciplinary boundaries in a methodology that transcends "pure" disciplines. By implication then the outputs of such a process cannot be represented of any one pure discipline but must result in the production of new knowledge. These authors go on to say that the transdisciplinary methodology can sometime lead to the development of new hybrid type disciplines. They mention geophysics and informatics as examples of this. To further support this notion of the evolution of new knowledge in transdisciplinary learning and problem-solving Emmelin (1993) describes transdisciplinarity as "a state of knowledge production that occurs when a common set of axioms prevail, relating to but *lying beyond* (author's italics) and complementing". Ramadier (2004) argues that inter and multidisciplinary processes are distinguished from transdisciplinarity by the fact that the former do not engage with paradox, nor do they try to solve them.

2.4   The Application of Transdisciplinarity

Much of the literature on transdisciplinarity is located at the theoretical level and there is something of a dearth of information relating to how transdisciplinarity is applied on an operational level. The next section attempts to review methodologies that have synergies with a transdisciplinary process. Thompson Klein (2001) refers to a process whereby individuals give their input which is discussed and criticized by other. A mediator plays the role of defining collectively what could and should be done and extracts the new knowledge from the group discourse. However Thompson Klein (ibid) gives no clear guidelines as to how this is done but merely explains that "as progressively shared meanings, diagnoses and objectives emerge, individual interests and views are seen in different perspectives". This explanation falls somewhat short of explaining how "new knowledge" is created. Later in the same article she gives an example of students at the Federal Institute of Technology in Zurich who form transdisciplinary project teams where they focus on real world problems with relevant stakeholders. Here they solve problems collaboratively with the help of facilitators from the

university, consultants and representatives from industry.   Once again the example falls short of giving details of a specifically transdisciplinary process.

Three decades ago Ravetz (1971) identified a distinction between technical and practical problems that required a different kind of problem solving methodology.   Technical problems tend to be able to be addressed within a disciplinary paradigm, however Ravetz's insights around practical problem solving led to the emergence of a class of contemporary problems that had specific characteristics, for example where facts were uncertain, values in dispute, stakes were high and the need for decisions was urgent.   These are characteristics that remind us of the conditions encountered in a postmodern context and those that 21st century leaders would find themselves grappling with.   It was argued that this type of problem required new methods of empirical methodology, which would incorporate a vast range and type of knowledge, in order to enhance decision making.   The nature of this methodology was one which would embrace knowledge integration in a manner which was synergistic with transdisciplinary problem solving. Horlick-Jones and Sime (2004) make some useful suggestions around a process for transdisciplinary problem solving.   They elaborate on three possible courses of action, firstly "action research" in which multi-disciplinary teams will engage in the resolution of real world problems, secondly "workplace studies" which use a methodology embraced by sociology which advocates the application of modes of practical reasoning by which people in everyday situations produce social facts and lastly "design work" informed by ethnographic and other insights into human behavior.   These authors describe an informed action research project implemented in an organization in order to resolve problems around risk management.   The project brought together operational research and management science, as well as enthnographic components from sociology and anthropology.   During the project many stakeholders actively participated in real world problem solving.   An aspect of the problem which makes it interesting in a discussion on postmodern context and transdisciplinary methodology is that, as a result of previous exposure to human behavior, the theorists chose to deal with the "messiness" of the participants every day risk management activities rather than the rigid, idealized, traditional approach to risk management.   In other words their research addressed the reality on the ground of human reaction and interaction with risk problems, rather than their application of fixed policies and procedures. The manner in which research and practice were bonded in this project

reflects the authors' application of transdisciplinary process.   They refer to this as "border-work", that is the hybridization of problem structuring methods and ethnography which they claimed added more value than conventional approaches to problem solving and resulted in an added by-product of important insights into the real world nature of risk management issues in the organizational setting.

Choi and Pak (2007) describe the process of problem solving in a complex and ambiguous context as being the gathering of information from experts, which they refer to as "knowledge transfer" then making connections between the data which they call "knowledge integration". This knowledge integration is referred to by the theorists as a "creative extension of knowledge transfer" in that the collaborative effort results in a solution that transcends the boundaries of the separate disciplines.   Information on how this process of collaboration takes place is missing from the discourse.   Tynjala (1999) name two challenges involved in converting the transdisciplinary/socio-cultural constructivist approach into andragogical forms.   These are :

    The need to develop instructional methods that take into account the situational
    nature of learning, and

    The learners' previous knowledge, beliefs, conceptions and misconceptions which
    strongly affect their reactions.

    This author continues by saying that students will have to "learn to learn" in a new
    way and that this will involve learning to communicate and co-operate during the
    learning process and to actively construct knowledge through task application.
                                                (Tynjala, 1999, p.366)

In attempting to address complex paradoxical problems reminiscent of the postmodern world, Calton and Payne (2003) describe a process which reflects the core characteristics of a transdisciplinary approach.   They speak of a process whereby "plural stakeholder voices work together over time to construct an emergent narrative or story that reflects a situated community consensus". Inherent in this process is the sharing of ethical norms and contextualizing

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knowledge within the community.   This process of contextualization is synergistic with the temporal and contextual nature of knowledge produced in a transdisciplinary approach to learning.   Hofstetter, Baumgartner and Scholz (2000) writing of transdisciplinary case studies, take a more detailed view of a transdisciplinary process which they view as taking place in a normative systemic sphere.   They claim that "the normative processes are based on the fundamental, partly subconscious preference and value structures of the involved agents from science and society.   An important goal within the transdisciplinary case study approach is to unfold these values and preferences and make them transparent in order to enable an open discourse among different groups of case agents".   This view speaks of a deep engagement between the social actors that goes some way to creating mutual understandings and would be of great value in the postmodern context of diversity.

Lizzio and Wilson (2004), in a study on action learning amongst students, describe an "on campus practicum".   This required third year students of the behavioural sciences to act as "consultants" to first and second year students, posing as "clients".   What are of interest in this study are the ideas generated by these theorists on the notion of evaluation and assessment in this innovative learning project.   The literature lacks clear information on process in this type of learning experience and also any discourse which attempts to find solutions for the grading dilemmas that would face academic teachers if they venture away from the traditional mode of learning.   These theorists utilized innovative applications of self and peer evaluation for the first and second year students.   Third year students were required to present valid proposals which included their experience of contracting, group diagnosis and early intervention processes.   The evaluation also included an end of semester process which allowed individuals to reflect on their experiences of the process and to relate these experiences to relevant theory.   Evaluative data was collected from the perceptions of staff and students in the client and consultant roles. Reflective and learning diaries were also included in the evaluation material. Enabling activities and techniques were taught to the students in order to support their learning on the project. These included workshops on building of consulting teams, structured reflection tasks, reflection on critical incidents, skill building, the role theoretical input and all these competencies were part of the evaluation process.   .   Clearly these authors managed to find ways to assess a flexible process which included reflection and critical thinking on the part of the learners.

Although not purely transdisciplinary in terms of knowledge generation, the work of these theorists offers some innovative insights that could be part of transdisciplinarity and which deal with the challenge of assessment.

Literature on transdisciplinary process and application has proved difficult to access, however, the work of Ivanitskaya, Clark, Montgomery and Primeau (2002) deals with an interdisciplinary approach to learning and as it has been established that transdisciplinarity is an interdisciplinary process, the work of these authors is deemed to be valid and applicable to transdisciplinary learning.   In fact, it has become increasingly clear as the literature review has progressed, that interdisciplinary and transdisciplinary learning processes appear to be discussed interchangeably, as elements of knowledge generation occur in interdisciplinary process.   Ivanitskaya et al. (ibid) say that the interdisciplinary learning process begins with learners applying interpretive tools across the disciplines.   By doing this they learn about their own internal mindset of implicit beliefs about theory, their personal assumptions, beliefs and prejudices.   They also emphasize the importance of epistemological development as students become aware that there may be other ways of knowing about the world, than their own.

These authors have applied the Biggs and Collis (1982) model of structural learning to the interdisciplinary learning process, omitting the initial prestructural level because of its irrelevance to the interdisciplinary process.

Structural Level	Description within a context of interdisciplinary learning	Outcomes
Uni-structural (uni-disciplinary)	Learner focuses on a relevant discipline	Declarative and procedural knowledge in one discipline
Multi-structural (multi-disciplinary)	The learner acquires knowledge in several disciplines but does not integrate them	Declarative and procedural knowledge in several disciplines that are related to a central theme; multidisciplinary thinking

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Relational (inter-disciplinary, limited to one central theme or problem)	The learner integrates knowledge from several disciplines around a central theme. Critical thinking skills are being developed as the learner becomes aware of the strengths and limitations of the perspectives offered by each discipline	Interdisciplinary content thinking (declarative and procedural knowledge); critical thinking skills; some metacognitive skills; advanced epistemological beliefs.
Extended abstract (interdisciplinary, extended to other themes or problems)	The learner acquires a knowledge structure that integrates interpretive tools (methodologies, theories, paradigms, concepts, etc.) from multiple disciplines. The learner uses metacognitive skills to monitor and evaluate his or her own thinking processes. The learner applies an interdisciplinary knowledge structure to new interdisciplinary problems or themes.	A well-developed interdisciplinary knowledge structure; content thinking; critical thinking skills; metacognitive skills; highly advanced epistemological beliefs; transfer of interdisciplinary knowledge.

Table 2.2 Application of Biggs and Collis's (1982) Structural Model to Interdisciplinary Learning (Ivanitskaya et al., 2002, p.105)

Noted in the above model is the increasing complexity of context and outcomes as the learner moves through the levels.   Higher order cognitive skills such as critical thinking and changes in epistemological beliefs only emerge after the integration of the disciplines in levels 3 and 4.

This is significant in terms of the discussion on the need for emerging leaders to acquire these skills in order to support them in decision making and problem solving in a complex, postmodern context. The reference to the different types of knowledge in the model reflects a move away from memorization of discrete information that traditional types of curricula typically encourage, the authors refer to the identification of types of knowledge that are synergistic with interdisciplinary learning. Declarative knowledge, in other words knowledge which is factual and can be declared, and procedural knowledge, which is processed based, according to Anderson (1982) is used for problem solving or step-by-step task completion. Procedural knowledge is particularly important for critical probing in interdisciplinary learning. Another type of knowledge important in interdisciplinary learning, and in particular to the development of complex, internalized organization of knowledge, is described by Ivanitskaya et al. (ibid) as structural knowledge. Here they draw from the work of Goldsmith and Johnson (1990) who describe structural knowledge as an understanding of higher-order relationships and organizing principles, or "an internalized framework of all the related perspectives, concepts, ideas and methods of inquiry making up the knowledge domain and giving it meaning". Ivanitskaya et al. (2002) claim that higher levels of structural knowledge are associated with improved problem solving, memory and knowledge transfer skills and increased memory, retention and comprehension of information learned. "To a higher degree than traditional, single topic approaches, interdisciplinary learning fosters a problem-focused integration of information consistent with more complex knowledge structures." (Ivanitskaya et al., 2002, p.100)

The models discussed here in relation to the application of a transdisciplinary methodology in learning, offer real value in terms of a developing a framework that would support the implementation of a transdisciplinary learning methodology in MBA classrooms.

2.5   Postmodern Theories Compatible with Transdisciplinarity

Transdisciplinarity has within its framework, many synergies with other theoretical paradigms that have emerged as a result of the postmodern transformation. Some of these are discussed below and their complementarity is noted. The time frame covered by these theories moves from systems theory and complexity theory in the early 1970's through to autopoiesis which

could be considered to be a more complex extension of systems theory. The socio-cultural aspect of organizational systems was first noted in the 1960's and then expanded on in the 1990's. We note the contribution to critical pedagogy by Wink and Freire in the early part of the 21st Century, and lastly the compatibility between postmodernism, critical management theory and transdisciplinarity, brings the discussion into the world of management and leadership and as such places it in the domain of this research. Since little research has been done on the development of a transdisciplinary learning methodology, these theories are useful in arriving at a platform on which to develop such a learning methodology.

2.5.1   Postmodernism and Complexity Theory

A definition of postmodernism supposes a somewhat circular rationale as the nature of postmodernism is to proscribe rigid descriptions and rule structures. Many postmodern theorists cannot agree on a definition of the term. Harvey (1990) states that since the meaning of "modernism" is somewhat ambiguous, it follows that postmodernism is even more difficult to achieve consensus on. What does seem to achieve consensus is that postmodernism has arisen as a result of social transformation in the latter half of the 20th Century (Lyotard, 1979). Lyotard argues that technology has largely been the catalyst that has precipitated this transformation. Huyssens (1984) writing about postmodernism, states that "....in an important sector of our culture there is a noticeable shift in sensibility, practices and discourse formations which distinguishes a post-modern set of assumptions, experiences and propositions from that of a preceding period". A startling characteristic of postmodernism is defined by Harvey (1990) as its "total acceptance of the ephemerality, fragmentation, discontinuity, and the chaos.....". Harvey further describes the hallmarks of postmodernism as indeterminacy, "intense distrust of all universal or totalizing discourses" suggesting that general truths are repudiated and contextual truth, i.e. a temporal, context related truth is all that can be defended. In relation to postmodernism Rorty (1979) speaks of pragmatism in the philosophy of science, Kuhn (1962) and Feyerabend (1975) talk of a shift of ideas about the philosophy of science and (1979) emphasises discontinuity and "polymorphous correlations in place of simple or complex causality". Whereas the modern era attempted to create order out of these elements, the postmodern era dismisses the need for order and calls for flexibility, ambiguity and unpredictability to be embraced (Klages, 2007). It is clear from the above discourse on

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postmodernism, that complexity and the postmodern context go hand in hand. The emergence of transdisciplinarity as a means to embrace this level of complexity and to solve the ambiguous and "messy" problems, to borrow a word from Calton and Payne (ibid), reveals the synergies and the potential value add of transdisciplinarity in the postmodern context.

2.5.2   Systems Theory

Ackoff (2004), in attempting to describe the ability to think systematically, said that "systems thinking is holistic versus reductionistic thinking, synthetic versus analytic" Inherent in this description is the postmodern move from linearity to complexity, the very dimension that has called a process of transdisciplinary learning into being. Systems theory emerged in the latter part of the 20th century in response to complexity and turbulent change in organizations. It is this complexity that transdisciplinarity seeks to address in linking cross disciplinary teams to embrace complex problem solving.

Forrester (1971) identified several characteristics of complex systems. These are summarized below :

- *Cause and effect are often separated in both time and space*
- *Problem resolutions that improve a situation in the short term often create larger problems in the long term, and actions that make things worse in the short term often have long-term positive effects*
- *As a result of the first two characteristics, people often fail to learn from their mistakes*
- *Long term delays often resulting in one person creating a cause and other experiencing its effect*
- *Due to differences in short and long-term effects; what a person learns from the short-term result of a decision may be different from the true long-term outcome*
- *Subsystems and parts of a system interact using multiple, nonlinear feedback loops. This complex flow of interactions often creates counterintuitive*

> *behavior. Consequently, what appears to be the obvious "right" decision is in fact often a bad choice!*

The above description highlights the fact that rational, linear problem solving is incompatible with the postmodern era. Each of the above points illustrates a level of complexity and unpredictability that bears little similarity to the Newtonian paradigm of simple cause and effect.

Atwater, et al. (2008) trace the emergence of systems theory to the Greeks but mention that it was not until after the Second World War when a credible scientific perspective on systems theory emerged (Von Bertalanfy, 1969). Atwater, et.al. (ibid) confirm that the multidisciplinary nature of systems theory has been inherent in this paradigm of thought since its inception. They also acknowledge that organizations are currently "multi-minded, multipurpose, social systems". Analytical thinking in businesses, prior to the era of systems thinking, caused business entities to be thought of as mechanistic systems where principles like scientific management broke work down into unitary parts which were allocated to individuals to perform. There was little integration and problem solving followed rational, linear processes with clear and obvious solutions. This, say Atwater et al. (ibid)*,* is the model that business and business schools have maintained in spite of the fact that the world no longer conforms to these simplistic, predictable models. However, according to these authors, as the business environment became more complex in terms of the need to share resources and measure performance across functions, social changes also occurred as new business stakeholders, who needed to play a part in problem solving and decision making in organizations, emerged. Organizations are now seen as sub systems of a larger system, that is, society or the community in which they operate. Bennis and Toole (2005) criticized business schools for not recognizing the fact that it is human factors and "all matters relating to judgement, ethics and morality" that make the difference between good and bad business decisions. In summary then it can be concluded that systems theory emerged not only in response to the emergence of complex changing systems in the external environment, but also to embrace a postmodern phenomena of a move towards human systems in the form of stakeholders, concerned communities and indeed the internal community of the organization represented by its human resources.

Atwater et al. (ibid) highlight the fact that the last decade of the 20th century was marked by the emergence of a systems view of organizations. During this time many respected theorists have commented on the need for management practice to change to accommodate businesses as complex social systems (Ackoff, 1994; Deming, 1994; Forrester, 1994; Senge, 1990). Atwater et al. (2008) argue that leadership development methodology should go beyond teaching emerging leaders about systems theory, but should assist the learners to develop systems thinking skills. This, they say, will help them develop a more in-depth understanding of the rich complexity they will face in the work environment, on a daily basis. This reference to complexity and a learning methodology which encompasses this, links into the transdisciplinary paradigm which is well placed to incorporate systems thinking and complexity in the environment. This link between complexity and transdisciplinary learning, is predicated on the nature of transdisciplinarity being an effective mode of working with complex problems.

2.5.3   Autopoiesis

Another concept which embraces the notion of complexity in problem solving is that of autopoiesis. It will be seen that autopoiesis is a concept that is significantly integral to transdisciplinary process.

A recent article by Jackson (2007), on the topic of complexity, traces the history and the nature of autopoiesis which, as described in his article, could be said to be a sub-theory of systems theory and thus will have elements in common with transdisciplinarity. He suggests that a metaphorical comparison between the two theories yields large elements of synergy. Maturana and Varela (1980) two Chilean biologists, are credited with the birth of this theory early in the 1970's. The theory originally addressed the dynamics of living systems but on a general level, it describes the nature in which organizations, through a series of adaptive processes, continuously regenerate and "realize the work of process (relations) that produced them". (Maturana and Varela, ibid). The value of this theory to the discourse on transdisciplinarity is in the sense that transdisciplinary processes need to be autopoietic in order to generate new knowledge and to maintain synergy with the constantly transforming environment that is characteristic of the postmodern era. Maturana and Varela (ibid) claim that the individual components, that is, the people in the transdisciplinary interaction, do not matter and can be replaced. It is in fact, the network of processes that create the energy for the autopoietic action.

Therefore an understanding of what these processes are is important in constructing a transdisciplinary interaction.   Social constructivism is the linking agent in Maturana and Varela's discourse, between autopoiesis relating to a mechanistic system and autopoiesis as a living system, such as an organization.   They refer here to knowledge management within a learning organization and the manner in which individual knowledge is translated into organizational knowledge.   Huysman and De Wit (2002) talk of the learning organization as a structure that allows for "continuous analysis and self improvement".   These authors discuss a process of externalization, whereby the individual communicates knowledge to the organization. They say that when knowledge is exchanged for the benefit of knowledge creation, then the communication becomes a conversation where knowledge is passed back and forth between the individual actors, and the product of the conversation is something new.   This "something new" of knowledge creation reminds us of the defining nature of transdisciplinary problem solving teams, in that they create new knowledge.   These same authors also speak of the process of "internalization" where externalized knowledge becomes group knowledge, and the process of "objectification" is one where the new knowledge becomes accepted by the group, which they refer to as knowledge "acquisition".   These concepts of externalization, internalization and objectification might be useful in laying down process for transdisciplinary teams, given the lack of research in this area.   Given these synergies with transdisciplinary teamwork, Huysman and De Wit's (ibid) "communities of practice" are likely to look very much like a transdisciplinary team. In conclusion Van Krogh and Roos (1995), in Jackson (2007) identify some problems in utilizing the concept of autopoiesis, originally a theory relating to mechanistic systems, in the analysis of a living system, such as an organization. These criticisms relate to the problem of comparing an individual to a component in a mechanistic system and whether these two entities operate similarly enough to generalize the theory from one to the other.   Secondly Maturana and Varela (1980) describe the autopoietic system as one that is purposeless, merely self reproductive – can the same be said for a living organizational system?   They also point out that in an autopoietic system knowledge is obtained from the external environment, it is not created purely within the system; this may or may not be true of a living system.   Lastly, they question whether the nature of a system boundary, through which information is passed from the external to the internal environment and vice versa, can be said to be similar in a living system and a mechanistic system?   These criticisms are valid ones and the answers have important

implications particularly if we choose to use the theory of autopoiesis in the process of identifying process for transdisciplinary teams. Huysman and De Wit (2002), in an earlier article, cite Hinds and Pfeffer, who identified certain limitations in the generation of knowledge in a living organizational system. These related to cognitive and motivational limitations of the individual members, which may cause a distortion in the knowledge creation process. Motivational issues may result in individual members not wanting to share knowledge in an open and honest discussion, perhaps due to competitive issues or the desire to "protect their turf". It is noted that both these concerns would be valid in a transdisciplinary problem solving process and methods to limit this type of negative energy in the production of knowledge would need to be identified and applied if transdisciplinarity is to have credibility as a knowledge creation process. Jackson (ibid), concludes that whilst there may be some argument about whether autopoiesis can be considered independently of systems theory, the discourse nevertheless provides value in the systematic nature of the feedback loops that are an inherent part of organizational learning. Given that leaders are the individuals that direct the course of organizations in order to create sustainability and viability, an understanding of these processes would add value in their development. The application of transdisciplinary learning in leadership development, given its synergies with autopoiesis and systems theory, as well as the allusion to social constructivism as having synergies in this context, clearly will provide a useful framework for leaders to learn about these intricacies.

2.5.4   Socio-cultural Constructivism

The notion of 'socio' implies that problem solving takes place in a social environment and the notion of constructivism is compatible with knowledge generation. Therefore social or socio-cultural constructivism is central to the notion of transdisciplinarity and studies in this area will enrich the study of transdisciplinarity.

Berger and Luckman (1967) were the early theorists who spoke of social constructivism as the tendency for people to construct a reality from a certain social context. Whereas this reality may seem to be a truism for those who participated in its construction, it is in fact an invention of a particular culture or society. Social constructivism is seen as a postmodern movement. Stauffacher, Walter, Lang, Wiek and Scholz (2006) talk of cognitive constructivism as a process

of constructing our knowledge of the world through a process of making sense of past and present knowledge, clearly an individualistic notion. Vygotsky, in the 1970's (Vygotsky, 1978) extended this to the social setting and makes early reference to the term the phrase social constructivism. Bruner (1966) made primary mention of socio-cultural constructivism in the 1960's and expanded on this in the early 1990's (Bruner, 1990). Resnick (1987) further supported the notion of socio-constructivism by saying that individuals "construct knowledge in a specific social setting". Socio-cultural constructivism extends the notion of social constructivism to the political and cultural context. It is this notion of socio-cultural constructivism which appears to have the most synergy with transdisciplinary learning in that organizational learning will inevitably take place in a political and cultural context. Interestingly, Ballard (2006, p. 526) criticizes the manner in which organizations today tend to view leadership as an individual rather than as a social construct. He argues that this restricts leadership development from building social capital through the application of more complex, systemic approaches.

Calton and Payne (2003), in discussing the paradoxical nature of the postmodern era, speak of paradoxes as being constructed as social actors "struggle with the cognitive tensions inherent in complex, dynamic relationships by simplifying them into polarized either/or distinctions and that paradoxes become apparent through social interaction that reveal that absurd existence of the irrational co-existence of opposites".

It is quite common in the literature for the concepts of transdisciplinarity and constructivism to be used in the same sentence, sometimes even interchangeably. Social constructivism "is a perspective that recognizes that the categories we use to understand and describe the world to each other are socially negotiated", (Berger, 1967). The synergies between this definition and transdisciplinarity emerge as one considers the social interaction that is a necessary part of the transdisciplinarity problem solving process. The process of understanding the world in social constructivism is also a key element of transdisciplinary problem solving.

2.5.5   Wink's Critical Pedagogy

Wink's discussion of the concept of critical pedagogy has clear advantages for teaching and learning where the communal aspect of leadership is valued (Wink, 2000).   The synergies with transdisciplinary learning are clear.   She says that critical pedagogy is a way of thinking about relationships in the classroom, which include the input of a wide array of stakeholders, including wider institutional structures, the nation, the state, but mostly importantly the community in which the learning takes place.   Interestingly although Wink (ibid) acknowledges her readers' need for a clear definition of critical pedagogy, she, in true transformative style, deliberately avoids providing a rigid definition in the hopes that by reading and engaging in the learning process, her readers will find their own definition. This proscription of structure is consistent with the flexibility inherent in postmodernism and in transdisciplinarity.   In the process they enhance its value and application as readers make the concept their own.   They do this by recognizing its value in application to the world of learning and its plasticity in moulding itself to suit many different learning contexts.   Feedback from one of her students illustrates the synergies with postmodernism and the transdisciplinary methodology :

> .....critical pedagogy means that we have to look back at our own histories and generate new questions in order to find new answers based on our knowledges, and literacies, and cultures......   (Wink, 2000)

Critical pedagogy requires the facilitator, teacher and learners to discover what is useful and meaningful in the application of theory, rather than attempting to embrace the theory without question, which often results in a compromise of self on an individual, social, cultural and spiritual level.   The inherent value in this proposition is that all leadership theory can be placed in the melting pot for learners and teachers to read and together evaluate their usefulness in their own context.   Another element of richness in Wink's (ibid) pedagogy is that she acknowledges that there is often not only one truth.   This is a transformative and enlightened stance which empowers learners and teachers to constantly ask new questions, and examine the nature of truth in their own pursuit of knowledge.   It makes a drastic move away from traditional power structures and places the power, and the responsibility for learning, firmly in the hands of the learners.   It embraces the concepts of paradox, ambiguity and improvisation, which we have

seen are integral to leadership capability in a postmodern context. Wink asks teachers and students, to sit comfortably in the space of "not knowing" often a necessary or unavoidable state in a context of constant change. How long is the validity of truth when truth is constantly evolving? This valuable spin-off in learning could be described as a dynamic and self empowered form of learning which does not just "transmit" knowledge, but which actually changes the learner in the process of engaging with new knowledge. Wink's is a narrative pedagogy wherein she acknowledges that she cannot predetermine the course of teaching, but where she can only share her story which will allow for those listening to make their own connections and to create their own meaning, from their own social perspective, their lives and their experiences. It is a pedagogy where the role of the community is central in listening, sharing and generating knowledge.

The value of unlearning and relearning in a culturally diverse context is clearly brought to bear on developmental processes by Wink. She states that unlearning involves a "shift in philosophy, beliefs and assumptions....unlearning is unpacking some old baggage". Bearing this in mind, it is not difficult to imagine the value of these concepts acting as a catalyst in the process of change. For Wink (ibid) unlearning is central to the concept of critical pedagogy and it is an essential premise for relearning, the propitiator of flexibility and change in personal and social philosophy.

2.5.6 Paul Freire

Freire's (2006) model of pedagogy centres around learning issues within the cultural paradigm of African-American children. The strong focus on placing learning firmly within the social context is a theme in this model as well and reflects the notion of socio-cultural constructivism. Other harmonious chords are struck by the importance placed on praxis, reflection on the socio-political challenges. Murrell (2006) questions whether African-American educational systems, with their dominant western approach can ever be more than indoctrination that supports the devaluing of African-American people. For him, Freirian pedagogy is a way to subvert this indoctrination and the cultural hegemony it supports Freire's concept of "emancipatory education" encompasses the need for education in any form to provide resistance to socio-political indoctrination as well as forms of discrimination that limit the learning process of particular people. Here, like Songca (2006) and Wink (2000) he calls for social context to be

incorporated into curricula, by empowering learners to engage in their own knowledge generation and determining praxis that is useful for their own socio-political challenges.   The strong focus on learning and education as a socio-political catalyst and his radical stance regarding discrimination and the devaluing of African Americans, distinguishes this pedagogy, not necessarily in terms of the main themes, but certainly in terms of the emotive radicalism aimed at changing the political system.

2.5.7   Action and Experiential Learning

This review of current thinking in learning methodology would be incomplete if it did not include some commentary on action and experiential learning, since these two methodologies appear to be very popular in business education at the current time. Kolb's (1984) experiential learning model is composed of four "adaptive learning modes".   His claim that knowledge is generated in the experiential learning process, providing one assumes, all four quadrants are engaged, is viewed by the author with some skepticism since, he also argues that all learning is re-learning, and is based on past experience.   In transdisciplinarity past experience is not relevant because of its lack of relevance to the present.   Thus the notion of knowledge generation in experiential learning is differentiated from knowledge generation in transdisciplinary learning, as the latter bases itself in the present and the future.   In reviewing current learning methodologies in business schools, Pfeffer (2009) agrees that these are primarily experiential in nature and that the experiential approach has been used by some schools in extending their curriculum from a skills based approach to include more experiential learning.   He quotes as examples, the University of Chicago, who responded to criticism through the MBA rankings that their program was too technical, by adding a LEAD program for all entering students.   This program incorporated exercises such as 360 degree assessment, leadership laboratories and other types of experiential exercises.   A similar response was undertaken by Stanford Business School which also incorporated a business simulation project.   Harvard Business School also runs a business simulation as part of its MBA program and has also launched a Centre for Leadership Development and Research.   Michigan also runs similar experiential programs.   The research by Pfeffer provides evidence of the awareness of business schools of the inadequacies in their leadership andragogy and their responses to these inadequacies.   Pfeffer criticizes these responses on the basis that they are often only weakly tied into the curriculum.   He further

argues that leadership is not given the prominence that it should be given in MBA programs generally.   In support of this Conger and Toegel (2003) criticize action learning as a learning methodology for leadership development and found that there was "unrealised potential" due to the "one-time learning, lack of explicit links between projects and leadership, poor outcome follow-up, problems in team selection and lack of opportunities for reflective learning.".

Action learning, a popular learning methodology in business schools currently, is not only relevant as an andragogy but has also been used both as a problem solving framework and also as a research methodology (Bath, Smith, Stein and Swann (2004).   Revans (1983) was the forerunner of the move to more application in learning methodologies and he was followed by Kolb (1984) with his concept of experiential learning.   The former focuses on activity in learning and the latter in learning through experience.   Revans (1983) refers to action learning as a "social process in which the parties learn with and from each other as they tackle problems of common interest or concern". The socialization of education is a key theme running through much of the andragogy of theorists in the postmodern era, particularly the critical theorists. This will be highlighted repeatedly in the progression of this discourse on leadership development. Revans was a predecessor to Kolb and raised the challenge for educators that learning should be more a process of doing than of discussion. In much of the writing it appears as if these two notions of action and experiential learning are similar.   Both involve reflective learning processes, action and student involvement as core to the learning process, both are also collaborative involving peer learning, however, the collaboration is not necessarily interdisciplinary as in the case of transdisciplinary learning.   Bourner, Cooper and France (2000) describe action learning as a group of individuals with the objective of bringing about change in the world, each of whom are experiencing difficulty and who test in action their ideas arising from the discussions.   Interestingly, later in their article, these authors conclude that action learning has value because of its ability to facilitate reflective dialogue and critically reflective learning, although these two components are not predominantly represented in their definition of action learning.   MGill and Beaty (1995) allude to action learning as being a reflective learning experience in a context of group support with the objective of "getting things done".   These authors do include a reference to reflective learning although it does seem to be secondary to the predominance of the group process and peer learning.   In reading further it does seem to come across that this reflective dimension is, in the opinion of other writers, the

defining characteristic of action learning. For example in the words of Brockbank and McGill (1998) action learning is used to facilitate reflective dialogue and critically reflective learning.

A study by Douglas and Machin (2004) utilized an interdisciplinary approach to problem solving, in an action learning setting, in a National Health Service project relating to the development of an integrated model of service development. So it appears that the notions of action and experiential learning are beginning to acknowledge the value of interdisciplinary processes, however, these are not currently well developed. The Douglas and Machin project did not incorporate any elements of knowledge generation that would have enabled a transdisciplinary approach.

Burgess (1999) operationalized the descriptions of Revans (ibid) and says that action learning is "giving operational form" to the "ideas of learning from experience, in the responsible here-and-now". He says that action learning is about reflection and that the problem solving is of a postmodern nature, that is, it addresses "paradox, paradigm shift, personal change, professional development and reframing in practical real situations". This allusion to postmodern problems suggests that action learning is a paradigm of thought that evolved as a result of an acknowledgement of the complex nature of leadership challenges in the 21st century. It is also interesting to note, particularly in the light of this research, that Burgess, in describing the process of an action learning experience, calls for the action learning teams to (preferably) be representative of a number of disciplines. However, Burgess does not indicate how inter-disciplinarity supports the process, and in reading the information, there is no clarity as to why this should be the case. Therefore although action learning can certainly be viewed as the beginnings of an awakening regarding the utility of inter-disciplinary problem solving, the idea at this point, does not appear to be well-developed. These notions of reflective, social, interdisciplinary learning highlight synergies with transdisciplinary learning. However, the differentiating value add of transdisciplinary learning is that interdisciplinary teams would be a necessary point of departure for a knowledge generating process. In Burgess's (ibid) treatment of action learning the notion of knowledge generation is not evident. Another strong deviation from the principles of transdisciplinarity is the "flexible discipline" that is imposed on Burgess's (ibid) action learning groups. Transdisciplinary teams are characterized by an absence of structure which may inhibit the creative process within the team. The action learning process

described in Bourner, Cooper and France (2000) is also reflective of a very structured process incorporating time limits and disciplines. In transdisciplinary learning no framework is imposed on the group interaction as this may restrict the outcomes and hamper the knowledge generating element.

Lizzio and Wilson (2004) place action learning at the heart of higher education. These authors discuss the notion of competence in the 21st century as being far more than the acquisition of a set of skills or the "application of previously acquired knowledge and skills". They incorporate innovative concepts in relation to competence such as "adaptive flexibility". Klemp and McClelland (1986) writing some time prior to these theorists, and well before the Burgess (1999) article support this notion of competence by identifying the construct of "successful adaptation" as a key component. Boyatzis (1995) talks of superior performance capability being related to "the adaptive management of the context of complexity, interdependency and innovation" and an associated self directed focus on self development. Barnett (1994) and Stephenson and Weil (1992) both discuss postmodern conditions in their discourse on higher education when they speak of "creative responses to the unpredictable" and confidently taking appropriate action in unfamiliar and changing circumstances. These authors clearly take the notion of action learning into the 21st century. Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) add the revolutionary and innovative notion of knowledge generation. The thinking of these authors has synergy with the concept of transdisciplinary learning. Notable is the contribution of Nowotny, who was one of the theorists who contributed to the emergence of transdisciplinarity in organizations.

Senge's (1990) notion of double loop learning, as opposed to single loop learning, has synergies with action learning and reflects the notion of capability as involving generative learning where learners are encourage to question the assumptions of current practice and theory and develop innovative responses to new situations. Marsick and Watkins (1996) and Sternberg and Horvath (1999) both allude to the inadequacies of formal, didactic learning and call for a learning methodology that allows for informal, reflective and interactive episodic contexts.

O'Brien and Hart (1999) investigated the role of action learning as a link between academia and industry. Their study talks of the notion of deep, as opposed to surface or didactic learning, as well as the spin off advantages of team building and relationship skills which are developed in

the action learning process.   The primary authors of this notion of "deep learning" were Entwhistle, Thompson and Tait (1992).   They describe deep learning as a process of focusing on underlying meanings, understanding the general message of the author and being able to integrate the components of the text.   This process of analysis is reminiscent of the notion of reflective learning, proffered by the critical management theorists.

Reynolds (1998) extended the notion of action learning to that of critical action learning where the art of reflection took on a new dimension.   Here he emphasizes the role of critical reflection in management learning.   In this respect he sees critical reflection, in action learning, as a key component in taking learning to a deeper level.   He argues that managers need to internalize the critical approach in relation to their own lives and to apply to social and political issues in society and in business.   It is clear from the work of Reynolds that he hopes to move action learning into the domain of deep reflection and interaction as is indicated by the reference to the engagement with social issues.   The internalizing of a critical approach suggests a much more deeply embedded learning which will be consistently replicated in behavior, thus entrenching critical thinking in the behavioral mode of the leader.   In this emancipated form of action learning we see strong synergies with transdisciplinary learning and the suggestion of a trend in learning methodology moving more towards a reflective, dialogue based, socially constructed form of learning and problem solving.   In harmony with Reynolds, Mezirow (1981) argues for the reflection of deep-rooted assumptions which result in "perception transformation" which will result in a "more inclusive, discriminating, permeable and integrative perspective" which will permeate and transform decision making.   This implies a more open and constructive approach to problem solving that is in harmony with postmodern approaches such as transdisciplinarity.

If one ponders on the synergies between the various learning methodologies popular in business education currently and the new innovations, it can be seen that there appears to be a body of knowledge which is moving towards holistic learning, reflective practice, collaborative learning and interdisciplinary teams.

The concepts inherent in action and experiential learning, for example critical action learning, deep learning and the development of team building and relational skills, resonate to some degree with those that are valued in transdisciplinary learning.   Thus experiential and action learning could be seen as the precursors to the development of transdisciplinary learning.

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Action and experiential learning were primarily brought into play to enhance the learning process of students, to make it more meaningful and to allow them to apply their learning in organizations more successfully than in the past. The component of practical application which is core to these learning methodologies is the factor that allows for newly learned knowledge to be transferred into the long term memory, for later retrieval and application to problems in the applied setting. Vince (2010, p.109) confirms this transfer of knowledge to an applied world by saying that :

> Through this process, the experiential learner is able to develop a set of cognitive, emotional, and physical skills that greatly enhance the learning experience while developing capabilities useful in real-world problem solving.

The development of these methodologies followed a criticism of training and development which stated that training focused on superficial learning that did not lend itself to the application of learned skills, after the training was complete. Kolb's concern in developing his model was to find a learning methodology that was more productive. He believed that the learning process would be facilitated by the integration of past knowledge and experience with new learning (Kolb, 1984). Thus action and experiential learning have a different focus than transdisciplinarity. The latter is posited in this research as a means of developing leaders to be more effective problem solvers and decision making in the 21st century. Clearly effective learning is imperative in any development process, however, the focus of transdisciplinarity is to address the challenges of the postmodern context, not to facilitate transfer of learning. Transdisciplinarity however, although it does reflect some synergies with these learning methodologies, is distinguished by the fact that it is a knowledge generating process, where interdisciplinary teams are empowered to generate knowledge in the resolution of contemporary problems which cannot be enabled or resolved by relying on extant theory, past precedents or for that matter, past experiences. This is a methodology for the postmodern world, where problems are far more complex and novel than in the past.

In attempting to develop a learning methodology that will support their theoretical paradigm, the critical management theorists are proponents of Action Learning. This is a knowledge sharing learning paradigm which focuses on self development, as opposed to the imbibing of theories

and scientific knowledge for their own sake. Ignorance is treated as part of the learning process and offers a basis for growth through the acquisition of knowledge by sharing and learning in a community (Alvesson and Willmott, 2001). The implications of the word "action" in Action Learning are that learning is an active and applied process. Thus where in traditional learning curriculum is defined by research and specialist knowledge, in action learning the curriculum would be defined by the manager of the organization. Facilitators would assume the role of guides in problem solving processes that would be the vessels for the development of models, ideas and concepts directly applicable to a particular problem. (Alvesson and Willmott (ibid)). Clearly the concept of replacing the expert lecturer or facilitator by a manager is a radical one which has potential to raise some problems and the application of this would need to be clearly thought out so as not to lose the value of the intellectual knowledge base that the academic institution would bring into the learning domain.

The ontology of the critical management theorists is commented on further in the following section. It would appear that if the critical management theorists embraced the notion of action learning, then, given the synergies and progressions inherent in the learning methodology, it can be assumed that they would also value the transdisciplinary process.

In conclusion it can be said that action and experiential learning, popular forms of andragogy in business schools today, are social learning processes that encourage reflective dialogue and critical thinking. They are dependent on group processes, however, they do not appear to utilize interdisciplinary teams or groups as a point of departure, and in this they are distinguished from transdisciplinary groups. What is noted however, is the trend towards seeing learning as a social entity and the inclusion of reflection and innovation in thinking, which is synergistic with a number of postmodern trends in andragogy as well as transdisciplinary learning.

2.5.8   Critical Management Theory and Postmodernism

There is a growing body of knowledge emerging from the paradigm of critical management theory that seeks to address the challenges of the postmodern era. Critical management theory is integrated into this research because of its valuable contribution to complexity management and its parallels with transdisciplinarity.

This research views critical theory and postmodernism through the same lens. It is acknowledged however that these two theoretical paradigms do diverge in certain areas. Alvesson and Deetz (1996) note the tensions between these two paradigms but view the convergence in the mainstream of thought as important. They believe that both these schools of thought have much to contribute to organizational studies. These theorists contend that both schools of thought focus on social/historical and political construction of knowledge, people and social relations and how these are represented in postmodern organizations. Both share a commitment to destabilize rigid power structures and "frozen social forms". Within this manner of thinking, these two schools of thought question the ethics of power domination in organizations and the manipulation of those who are controlled, to achieve the aims of those who control.

Alvesson et al. (2006, p. 273) describe the differences between the two in the following manner :

> Critical theory wants us to act and provides direction and orchestration; postmodernism believes that such a move will be limited by the force of our own subjective domination and encourages us to get out of the way and allow the world to pull us to feelings and thought here-to-fore unknown; but critical theory does not have enough faith to let go.

Suffice to say that the discourse goes on, but for the purpose of this research we focus on the input side, the main theoretical outlook, as opposed to the solutions or outputs which is where the main divergence between these two schools of thought seems to reside. The critical theorists, in their predilection for developing solutions, have the most synergy with this research in its attempt to identify and provide answers to the inadequacies of postmodern andragogy in leadership development. The utility of the critical theorists in approaching modern day organizational challenges is its focus on discourse, reflection and ethics which is at the heart of a socially based knowledge production which is the key element of transdisciplinarity. Both postmodernists and critical theorists provide useful insights into historically dependent dissatisfactions. These dissatisfactions can relate to the quality of work life in postmodern organizations or to the broader perspective of a consumption-based social value system (Alvesson et al. (ibid)).

Critical work on management and leadership theory is essentially anti-managerialist, that is where management is posited as a control mechanism. The intention of the critical theorists is to critique management practice (Grey and French, 1996).

Cooper (2003) traces the history of critical management science and attributes its roots to Jackson in the early 1990's. According to Jackson (1991) critical management science (sic) had its origins in the 1970's when the first radical attacks were launched upon traditional management science. The early critique originated from soft systems thinkers and from Marxist scholars who questioned assumptions about the primacy of rationality and the "naturalization" of social relationships within mainstream management science. By the 1990's the critical edge of critical management had moved, and both soft systems thinking and Marxist organizational theory were being interrogated from alternative perspectives, especially those derived from critical theory or postmodernism of resistance. Reed's (1996) account of the historical development of organizational studies and Jackson's (2003) account of the emergence of critical systems thinking refers in this instance. As its name suggests, *critical* management theory is a critical response to the technicist approach to management. The approach is described by Habermas (1979/1981) as decisionism. The core element of critique for the school of critical management theory appears to be around a rejection of the imposition of a core value system, associated with a particular form of human relations and organizational politics. Alvesson and Willmott (2001) note that in the Harvard Business Review, September through to December of 1992, contained several criticisms by senior practitioners of the curricular of business schools in which there is an emphasis on the acquisition of techniques to the exclusion of interpersonal skills and competence in communication. Critical management theorists call for a symbiotic relationship between what managers do, that is, techniques, and the context in which they do this. They call for a symbiotic relationship between the operational aspects of management and the social, cultural and political context in which they take place. Given the nature of the 21st Century, this "context" would inevitably require developing managers and leaders to embrace current issues such as the environmental crisis, the economic crisis, social and political debates and to embrace a humanistic paradigm that is concerned not only about the means of production, and the maximization of profit, but which also protects and grows human and natural resources in a sustainable fashion.

A reflection on the work of Alvesson and Willmott (2001) in the area of critical theory and critical management theory appears to bring together much of the thinking in the previous theories but transports them into the environment of the organization or institution. These theorists note the role of human beings since time immemorial, for reflecting on, and changing the status quo in institutions and more broadly, in society. "In common with critical thinking, critical theory builds upon this legacy to scrutinize contemporary practices and institutions" Alvesson and Willmott (2001).

2.5.8.1   Critical Theory and Socio-Political Paradigms

Clear in the work of Alvesson and Willmott (ibid) is a paradigmatic move into a value system and an epistemology which embraces different underpinning forces than the patriarchal values and priorities of capitalism. They do not necessarily call for the demise of capitalism, but for it to embrace more socially appropriate, critical reflection models in order to generate solutions that have long term value for society and for the environment and that are appropriate in terms of the complexity of the postmodern context. They contend that the generation of knowledge is constrained by prevailing relations of power and they note that the control mechanisms of capitalism would be a barrier to the nature of critical thinking inherent in critical management, which would inhibit the capacity to reflect critically on established "truths". Their perspective is reflected in the statement that "…modern politics are much more absorbed by narrow, instrumental questions about how to maintain or regenerate elements of the capitalistic system".

Support for the rejection of the capitalist economic system is found in an introduction to a special issue of the British Journal of Manager named "Making the Business School More Critical" where authors Currie, Knights and Starkey (2010) contend that the financial crisis of 2008/2009 was the natural outcome of the disastrous liberal neo-classical business model perpetuated by business schools in the late 1990's and early 2000's. They also argue that free market principles relating to the capitalistic model were a catalyst in the crashing of the economy.

Gephart and Pitter (1993) visit the notion of Habermas (1979/1981) on the connection between economic, political legitimation and motivation crises to argue that "rational" decisions inadvertently produce "major industrial accidents" and that risks inherent in the pressures of

capitalism (for example to reduce costs and increase returns) are transferred from corporations, via the State, to individuals who either suffer directly the consequences of the pressures or, as taxpayers pick up the tab for remedying their effects. They quote the example of the Challenger Aerospace disaster as a particularly traumatic and shocking demonstration of the effects of such pressures. Their contention is that "…to a considerable extent, irrationality and socially unnecessary suffering is a consequence of narrow, technocratic thinking that simply disregards alternative priorities and forms of action that could be supported without necessarily damaging profits or jobs", (Gephart and Pitter, 1993). Given the synergies between the application of critical theory and particularly the need to create a reflective space in problem solving, it is clear that transdisciplinarity would be an appropriate alternative "priority or form of action" to create this space and by implication better considered solutions to complex problems.

2.5.8.2   Implications for Leadership Development

Alvesson and Willmott (2001) recognize the manner in which we limit student learning in curriculum tests and readings, to reflect the prevailing political and social philosophy. They say :

> For critical theorists much scientific and management knowledge is a *one sided* expression of a dialectical process in which all appreciation of its historically embedded production is obscured. In contrast the dialectical imagination of critical theory strives to expose and critique contradictions in managerialist claims that its (ideological) theories are objective and that its (oppressive and destructive) practices are efficient and effective. In this way we place borders or limitations on the student's thinking and we block the production of new knowledge, which may not support the prevailing status quo. In doing so, according to the authors, we open up the possibility of more rational, less contradictory, but probably more comfortable, pathways of social development. By implication then we block the natural growth and transformation of the organization and the society within which it is rooted.

Alvesson and Willmott (ibid) note that "people who have developed a capacity to think critically and thereby challenge conventional wisdom, we believe, are better equipped to shift the balance away from established priorities towards other, more socially defensible goals." This statement

carries an inherent responsibility for educators of managers and leaders to equip their students with these skills. They go on to say that "for critical management theory to have an effect, it is of decisive importance that managers and managers-to-be become acquainted with critical thinking during their education." The capacity for transdisciplinary process to provide a framework for the learning and application of critical thinking is noted. Further support for the role of transdisciplinary engagement is found in the statement that "the approach to education most consistent with critical management theory is one of dialogue, rather than formal lecturing, in which students are enabled to see themselves and their situation in a new and meaningful light", (Comstock, 1982; Forester, 1993; Grey and Willmott, 2005). These theorists go on to say that critical management theory "can inspire and guide a cognitive shift in which wider concerns put their imprints on the criteria and considerations governing decisions and actions." The accountability of business schools to produce ethical, socially responsible leaders who can be effective in a complex, postmodern context is illustrated by the comment by Alvesson and Willmott (2001) that management departments and business schools in colleges and universities are becoming key socializing agencies for the intelligentsia of advanced capitalistic societies. These theorists have noted that senior practitioners have questioned the curricula of business schools in which there is an emphasis on acquiring techniques, to the neglect of interpersonal and communication skills. These practitioners have problematised the technicist orientation to the theory and practice of management, and by implications, of leadership development.

2.5.8.3   Synergies with Transdisciplinarity

The notion of knowledge generation, critical reflection against the background of deep dialogue, sets the scene for a transdisciplinary process within the theoretical framework of critical management theory. This transdisciplinarity is seen as a process that will enhance the application of critical management theory in organizations and particularly in settings where leaders engage with each other over complex postmodern problems, which require interdisciplinary input and the emergence of contextually relevant knowledge. Critical management discourses clearly also take place within the paradigm of socio-cultural constructivism. Action learning, particularly critical action learning, comes close to being a knowledge generating process in that it develops models, concepts and ideas, however, it is not clear what the basis of these developments are, that is, do they emerge from current knowledge

or are the students empowered to be innovative in generating new knowledge. The implication is the latter however this is not clearly stated in the literature, neither is there a clear application protocol for this type of learning. Interdisciplinarity is also not mentioned as a precondition for problem solving. However, the fact the key concepts inherent in action learning, of knowledge sharing, conceptual development, self development and maturation and risk taking in terms of being wrong or "not knowing" would be well supported by a transdisciplinary process. Action learning and transdisciplinary processes also share the notion of dialogue as a key instigator and catalyst for the knowledge generation or problem solving process. There are some strong synergies between the two paradigms of thought and the more radical approach to learning and the empowerment of the student are strongly consistent with a transdisciplinary approach.

2.6   Critique of current methodologies for leadership development

The education of business leaders in business schools has, for some time, been the object of criticism. The main thrust of these criticisms is that the nature of the learning process does not adequately prepare leaders for their roles in society or in organizations. Pfeffer (2009) argues that in spite of the attention that inadequacies in leadership education have had, the data still suggests that all is not as it should be in business schools. Atwater, Kannan and Stephens (2008) specifically direct their criticism at inadequacies in preparing leaders for effective decision making. In support of this specific criticism, Randy Komisar, business author, entrepreneur and partner in a significant venture capital firm observes that very few executives, including MBA graduates display the capacity to think analytically and critically about business strategy (in Pfeffer, 2009). Pfeffer (ibid) goes on to say that the lack of positive correlation between student grades in MBA classes and their ability to be effective in corporate decision making is problematic. Pfeffer expresses concern over the apparent notion that students are more concerned about achieving the outcome of the MBA program, that is, an MBA degree, than they are with the experience of learning or being possessed by any degree of intellectual curiosity. The implication of this is that the MBA has become a commodity which has a significant perceived value on the labour market, but the nature of the commodity, it would appear is not always what the traders perceive it to be. Mintzberg (2004) agrees and states that business schools seem to be producing graduates who are ill prepared to take on the leadership challenges of the real world. Burgess (1999) raises the problem of the traditional academic

focus on narrow academic content and the passive manner in which this is normally taught. Schatz (1997) laments the reluctance of business schools to respond to demand from organizations for improvements in management practice. They note that many popular techniques have been applied in training and development interventions in organizations, supported by consultants and theorists, but these are not taken up by business schools. An example of this is the significant focus on leadership and team building skills that has taken up the main focus of training and development in organizations over the last decade, and yet, business schools have been very slow in including interventions around team building and leadership into their curriculum and learning methodologies. Schatz (ibid) goes on to identify three reasons why business schools have failed in this area of synchronization with the needs of business. The first is that they have not felt the consequences of this failure. That is, they have not reached a "crisis point" that would serve as a catalyst for change. Students still enroll and companies still, unquestioningly hire their graduates and until this changes, business schools will likely not be motivated to make any changes in the way they prepare leaders for their role in the postmodern organization. Secondly Schatz claims that there is a distinction between training and teaching, he claims that business schools do the latter but not the former. Teaching he says is about learning theory, whereas training requires an element of practice, of "doing". He criticizes the clinical approach to learning which is predominant in business schools and which ill equips leaders to deal with the emotional aspects of problem solving and decision making, which they will inevitably encounter in real world problem solving situations. Lastly, he laments the number-crunching focus of business schools, and the unintegrated, discipline based approach to management development that bears little resemblance to the complex world of the 21st century leader. He also notes the lack of focus on leadership development as an integral part of MBA curriculums. Writing in the late 1990's he calls for business schools to incorporate an element of training, action and activity in their learning processes, which he claims there was very little evidence of at that time. Pfeffer (2009) concurs and states that the notion that people who graduate from business schools actually have acquired and retained relevant knowledge on how to be effective leaders, is based on faith rather than data.

French and Grey (1996) identify two broad contemporary perspectives on management education. The first has to do with the radical alteration of the content of management

education programs and the second perspective argues that the concepts of management are so illusory that they cannot be taught. This latter mode of thinking has some synergies with the argument of the critical management theorists. Both assumptions, one fairly conservative, the other radical, note the relationships between management education and the application thereof in management practice. The critical management theorists have been challenging the management and leadership development paradigm for the last 25 years. Khurana (2007) from the Harvard Business School, in a review of over a 100 years of business education, claims that schools have strayed far from their "lofty aim of educating far-sighted, moral business leaders to producing myopic, career technocrats".

A significant contribution regarding the debate around the efficacy of business schools comes from a recent article by Chia and Holt (2008). The novelty of their arguments and the depth of their research warrants a fairly detailed analysis of their article. These authors demonstrate accord with common critique in the business school debate. They also reject the application of Newtonian models generally taught in business schools. They argue that this approach denies the messiness of contextual issues that managers have to cope with and they claim that students are "unwittingly" denied exposure to the "actual richness and messiness of managerial realities". (Chia and Holt, 2008, p. 476). They claim "the art of doing has been overshadowed by the science of reasoning" (Chia and Holt, 2008, p. 476). They suggest that professors, in defending their linear, mathematical models, tend to address the problem of lack of fit with the real world, by challenging the accuracy of the model rather than an acknowledgement that the postmodern world no longer can be trusted to conform to an array of normal distributions, where deviations can be confronted and resolved through a process of analyzing the reasons why the model does not explain them. Anomalies are often brushed aside as confounding variables which are seen and explained away as inconveniences in the research process. Goshal's (2005) criticism of the scientific mode of teaching in business schools which supports the identification of apriori truths that deny the importance of contextual or historical influences, supports the concerns of Chia and Holt (ibid). Indeed one of the main elements of these authors critique on current, traditional business school andragogy is that it completely precludes the affective element of business. Leaders are not taught how to deal with the complexities of human interactions, nor do they confront the emotional aspects of problem solving and decision making processes. Chia and

Holt (ibid) use a contemporary event that illustrates this. They cite the example where Donald Trump, ostensibly in a benevolent mood, wanted to erect a golf course outside Aberdeen in Scotland, in memory of his mother. This project, thought Trump, would bring economic stimulation to the environment and in his view, should be embraced without question by the local population. However, in applying his rational, linear view of the world, he overlooked the emotional responses of the stakeholders who clearly were not a predominantly golfing community, and who raised concerns about the destruction of the environment, who possibly associated golf with an elitist perspective, and who rejected what they saw as another attempt by the rich and greedy to make money out of their environment. This example very elegantly displays the failure of models of decision making that do not acknowledge the affective component. They also do not acknowledge the context and the history of the local stakeholders and they therefore result in poor decision making. It is this type of messy and unpredictable problem that is typical of the postmodern environment. This example also shows how a transdisciplinary decision making process would have added value in this context. A transdisciplinary decision making team would have brought together all concerned stakeholders and would have allowed for a discussion that would have revealed all the affective and objective issues. Participants would have brought their context, their history and their prejudices to the table where they could have been acknowledged, debated and massaged into an acceptable solution. Quite possibly, new knowledge would have been generated which would have proffered a solution acceptable to all stakeholders. Chia and Holt (2008) recognize the decision making of Trump in this example as typical of the application of business school models which rely on the acquisition and application of knowledge and which deny the affective reaction that would be evoked by the affected stakeholders. They say that this leads to a "rigor mortis of the mind : a rigid inability to recognize that the practice of management is crucially about the exercise of judgment and discretion and the need to bear the emotional consequences of one's own actions". (Chia and Holt, 2008, p.479).

This inclusion of affective components in problem solving is not a new concept as the authors point out. They draw on the thinking of the ancient Greek philosopher, Aristotle, who wrote that the authority of knowledge was based both on rational demonstration and affective persuasion, not purely on rational logic. They juxtapose the position of Plato as a proponent of

the separation of affect and logic against the perspective of Aristotle who acknowledged the important influence of affect, and see these two opposing philosophies as a mirror of a postmodern problem. Clearly the friction between logic and emotion is one that has been the object of debate for a very long time. For Chia and Holt (ibid) this debate is critical in terms of business school andragogy since it underlies the need for this andragogy to engage with the tensions between these two perspectives in order to allow business schools to equip potential leaders with the capability of negotiating emotional and effective responses that evolve out of social contexts. In maintaining their critique of the learning methodology, a second element of criticism from these authors is aimed at business school professors. Their argument is that as long as universities and business schools place priority on research and publication, that professors are not, and will not be motivated to develop a contextual and practical understanding of the world of business, that is the world that leaders will eventually be immersed in after graduation, the world that their MBA's ostensibly should prepare them for. Chia and Holt (ibid) take issue with the trend that MBA's are selected in organizations more on the basis of their alumni associations with credible business schools, than on their competence. They claim that often this lack of competence reveals itself after they have been appointed.

Rubin and Dierdorff (2009), in an article which questions the relevance of the MBA point not only to the history of criticism regarding the MBA but also to a recent and growing number of concerns with the MBA as premise for training and developing managers and leaders. They cite (Bennis and O'Toole, 2005; Ghoshal, 2005; Khurana, 2007; Mintzberg, 2004; Pfeffer and Fong, 2002). Bennis and O'Toole (ibid) argue that the education of graduate schools has become less and less relevant to practitioners. These authors, together with Mintzberg, 2004 claim that business schools have "lost their way" in refusing to see management and leadership education as a profession rather than a science. Theorists Rubin and Dierdorff (ibid) analyzed data from 373 business schools and found that on average the main emphasis in curriculum coverage has to do with managerial activities such as managing administration and control, managing the task environment and managing logistics and technology. More leadership focused activities such as managing strategy and innovation, managing decision making processes and managing human capital were not given the core focus of attention in curriculum.

The key theoretical component in their argument revolves around the concepts of knowledge-by-representation, and its associated concepts of episteme and techne. These latter two terms are borrowed from the ancient Greek where episteme refers to abstract generalizable knowledge and techne is associated with technical knowledge which can be quantifiably measured. In applying these two terms to learning methodology or andragogy, episteme would presumably relate to the research element and techne to the teaching of technical skills. The criticism of traditional university and business school methodology revolves around their preference for what these authors refer to as an andragogy supported by knowledge by representation and the linkages between these concepts and the predominance of the teaching of linear, mathematical models in business schools is clear. These authors propose the application of an andragogy called knowledge-by-exemplification as a remedial solution in making business schools more relevant in leadership development in the context of a postmodern world. This notion of linkages between concepts brings to mind the criticism levied at the silo's approach to business school curriculum. Thompson and Purdy (2009) noted that among the recent innovations in business schools curriculums is the incorporation of interdisciplinary knowledge. They note that integrated courses are a departure from the traditional silo's approach to business school teaching which mimicked the linear approach to learning. A study by Navarro (2008) found support for the predominance of functional silos in business school as well as a lack of, amongst other things, multidisciplinary integration.

The following discussion looks at the various debates around the development of leaders and highlights some of the main themes.

2.6.1 Leadership Failure

Atwater, et al. (2008) state that as far back as 30 years ago, the Harvard Business Review published an article by Livingstone on this topic of leadership failure (Livingstone, 1971). This article was followed by further criticism along similar lines (Bennis and O'Toole, 2005; Dertouzos, Lester, and Solow, 1989; Goshal, 2005; Mintzberg, and Gosling, 2002; Pfeffer and Fong, 2002; Porter and McKibbin, 1988; Steiner and Wells, 2000). Sub-standard competence in leaders is evident in the fact that during the year 2000, forty CEO's of Fortune's top 200 companies were fired or asked to resign (Bossidy and Charan, 2002). These authors also say

that for every successful new business there are 22 failures, the average life span for those that survive start up is only 11,5 years, every year 30 companies drop off the Fortune 500 list and lastly, that the average life span of firms on the S&P 500 is 25 years (Morris, 2003).   Further evidence shows that poor performance has resulted in high turnover and a related average tenure for CEO's of around 18 months (Charan, 2005). Atwater et al. (ibid) criticize business curricula for being functionally isolated which results in a failure of students to understand the way in which the parts of the organization work together.   The manner in which transdisciplinary teams work together across disciplines to solve real world problems comes to mind as a solution to this criticism.   These theorists also argue that cross-disciplinary methods lend themselves to the use of systems thinking and that systemic thinking approaches would benefit almost every area of the business curriculum.   In support of an approach to adult education which integrates the disciplines, several studies raise concerns about discipline specific learning methodology that is fragmented and limited in scope (e.g. Baloche, Hynes and Berger, 1996; Humphreys, Post and Ellis, 1981; Jacobs, 1989).   Ivanitskaya et al. (2002) makes the claim that interdisciplinary types of learning should result in the acquisition of more holistic knowledge.   They argue that discipline specific andragogy is superior if the objective is to build depth in single subject knowledge, however interdisciplinary learning has the advantage of being able to develop higher-order thinking such as analyzing, applying and generalizing as well as searching for and identifying meaningful connections between disciplines.   In this it is clear that the authors believe that interdisciplinary learning methodologies, such as transdisciplinary learning, have the potential to build the higher order capabilities that will equip the learners to deal with complexity. In support Schommer (1994) argues that students who can question epistemological beliefs, such as the need for certainty and the organization of knowledge, are better equipped to take on the challenges of complexity in knowledge generation and application.   It is also argued that whilst interdisciplinary learning may not be the panacea to all the challenges of traditional learning andragogy, they have the advantage of being able to build complex thinking capability when they "balance a focus on thinking process with a focus on learning specific content" (Baxter Magolda, 1992, p.286).

2.6.2   Lip Service to Postmodern Challenges

Grey and French (1996), well over a decade ago noted that management education needed a radical overhaul.   They called for more than just adjustments to new pedagogy but, based on a variety of articles encased in their publication of 1996, they state that the nature of management education needed to be fundamentally challenged in terms of its traditional understandings, in its relation to management research, to management practice and also in relation to the living experiences of managers and leaders. O'Brien and Hart (1999) offer support for these criticisms and state that business education has been criticized for being too focused on theory, too compartmentalized and by implication, lacking in an holistic approach.   Grey and French (ibid) identify, as a response to the aforegoing criticism, changes in the environment of the manager/leader that required a corresponding transformation in andragogy.   They cite Peters and MacIntyre in raising postmodern issues such as the ability to thrive in chaos, "irredeemable turbulence, irrationality and ambiguity" (Peters, 1988) and the "inherently uncontrollable nature of social relations" (MacIntyre, 1981).   Grey and French (ibid) mention, almost apologetically, the postmodernist nature of these latter concepts or descriptors of the world of the leader in the 21st century, suggesting that this era of turbulence and unpredictability is one which managers and leaders and those who strive to provide them with skills, is one which, was something lurking in the background like a dark shadow that everyone was marginally aware of but reluctant to fully acknowledge.   It is noted that the need for transformation in the provision of leadership development, was being discussed and debated over a decade ago.

2.6.3   The Lack of Stimulation of Critical Thinking and Innovation

Another component clearly missing from the framework of management education is the potential for management education to stimulate critical and emancipatory thought. Cavanaugh and Prasad (1996) note that critical thinking had yet to penetrate management and leadership development curriculums, or even management practice.   They speak of a "crisis of criticism" and point to the fact that to their knowledge nowhere in America or Canada was criticism a standard component of any business curriculum.   Boje (1996) takes the modernist control systems to task in an attack on current university structures and control procedures, likening them to Foucault's (1979) concept of a panopticon, an invasive and omnipresent "seeing eye"

which allowed for everybody in the system or community to be observed without being aware that they are being observed. In the postmodernist view this would probably be viewed as an human rights violation. Actually the original concept of the panopticon came from Jeremy Bentham in 1785, an English philosopher and social theorist. This is a harsh metaphor that Boje (ibid) imposes on what he describes as the prevailing nature of "modernist" universities and business schools. Whilst it is true that in reading about, and observing processes in business schools and classrooms, one cannot help but be aware of the metaphorical grapevine of observation and evaluation that seems to be spreading its tentacles deeper and deeper into the fabric of the university. One can also say that perhaps this restriction may well be suffocating the life and certainly the academic freedom of thought and speech. This in turn will of course limit and possibly exclude any form of creative and innovative thought in both teachers and students. Control is the antithesis of creativity. Creativity in its nature surpasses and transcends boundaries. It is clear then to stimulate creative thinking in the process of developing leaders, would require some relinquishing of the current control processes, particularly those in curriculum development and in assessment processes. However, and this is where Boje fails to make a useful contribution, some control is necessary for sustainability, for the university structure to survive and to retain its credibility, however Boje (ibid) does not, in this particular chapter, make any suggestions about how the current modernist system could be transformed in order to take it to the level where more freedom and creativity could be incorporated. Vince (2010), over a decade later, criticizes business schools for employing a dependent model of learning that creates followers rather than leaders and in fact doesn't develop leaders at all. It is the thesis in this study that transdisciplinary group processes would in fact provide the platform for generating critical and emancipator thought in the MBA classroom. Later in this discussion Antonacopoulou (2010) argues that a phronetic approach to leadership has the potential to incorporate a critical approach to learning, and to transform business schools into critical entitites. Inherent within the notion of phronesis is the concept of "reflexive critique". She argues that reflexive critique encourages :

> A reflexive critique of existing ways of seeing, a critique of prevailing
> perspectives, a critique of arguments and propositions (verbal and written), a
> critique of commonsense as common (it rarely is), a critique of received wisdom

and dominant assumptions, a critique of personal biases and partialities based on personal interests.

The value of the above is evident in allow MBA students to grapple with novel challenges in a turbulent and complex postmodern environment. The ability to view things differently, to challenge existing paradigms of thought and extant theory, is clearly valuable capability in coping with an unpredictable, complex business context.

For Grey, Knight and Willmott (1996), critical management theorists and proponents of critical pedagogy, the issue of problematization is central in postmodern leadership pedagogy as it is this element of problematization of learning that opens up the learning process for critical thinking, innovation and the generation of new knowledge. Problematization for these theorists, is a key differentiator in terms of placing critical pedagogy in the postmodern context of learning and outside of the traditional modernist view. They argue that reflection on experience, as takes place in traditional forms of experiential learning, has to do with problematizing the experience rather than validating it, or as a means to make the ingestion and digestion of a body of management and leadership theory, more easily digestible. They are emphatic that critical pedagogy is not a new way of teaching existing knowledge about management and leadership but rather its main concern is to "reflect critically on such knowledge as part of a more general development of critical management studies". Here these theorists reflect the postmodern line of thought that leadership is a social process by stating that through student reflections and discourses management practice is revealed as a social, political, economic (that is, interdisciplinary) and moral practice. From a transdisciplinary perspective and in support of the critical theorists Morin (1997) says that "universities are places where knowledge is not only transmitted, but also transformed". Unlike Boje (1996), French and Grey (1996) do offer a detailed proposition on how critical pedagogy can be applied in classrooms. This is discussed later on in this report, in the section dealing with the implementation of a postmodern leadership development andragogy.

Continuing this debate relating to the absence of critical thinking, specifically in MBA programs, into the present, Antonacopoulou (2010) discusses the nature of MBA programs as

functionally based programs which maintain the concept of profitability as central to the process of efficient management. She says :

> This uncritical orientation towards teaching and learning about management provides little space for experimenting with ideas that operate outside the dominant economic logic and hence social and political aspects within management are neglected. Moreover it fails to provide the space for reflection and questioning of the practice of management experienced by many of the participants on MBA programmes.
>
> (Antonacopoulou 2010, p. S10)

It can be seen from the above discussion that critical theorists have been raising and debating the problem of a lack of critical thinking in business schools for some time.   The debate is continued in the data collected for this research and is evident in the discussion of lecturers in the sample, relating to the problem of incorporating critical thinking into their MBA programs. Thus in spite of the length of the debate, it is evident, that business schools have been unable to find a solution.

2.6.4   The Social Role of the Leader

The social nature of leadership is raised in the writing of French and Grey (1996) and their contributors, and even in the 1980's and early 1990's they acknowledged the connection between leadership and society and as such they highlight the crucial role of business schools in addressing social issues in their curriculum.   A view that supports theirs is that of Huczynski who says that "management has become an activity of central importance in modern societies, and that the management academy has, for better or worse, a crucial role in producing and reproducing the practices of management", (Huczynski, 1993).   Coetzee (2009) speaks of a "social contract with business" as a prerequisite for leadership development within the MBA program in order to reflect the triad of responsibility between society, politics and earth.   He proffers this as a "raison d'etre of the postmodern MBA".   Coetzee's paradigm of thought is in harmony with the notion of transdisciplinary learning as it reflects the complexity and inter-dependence of thinking needed in a postmodern context.

It should be noted that French and Grey (ibid) refer to management education in their discourse, however, they include not only operational management techniques in the broad parameters of management but also strategic issues relating to, for example, value bound corporate cultures, the role of information technology in the efficacy of organizations, managing human resources and guiding the organization through turbulent times. Therefore their concept of management is considered to cover the strategic and people aspects of leadership as defined within this study.

2.6.5   Skills Acquisition versus Holistic Leadership Development

Criticisms of management and leadership development often revolve around the skills based approach to teaching, whereas theorists such as French and Grey (1996) argue that management needs to be understood as an activity and should be appreciated as a social, political and moral practice. The role of the leader as a social steward discussed later in this report, is clearly something more than just a set of skills. Grey, Knights and Willmott (1996) associate the discipline or silo's approach to leadership development with the skills acquisition perspective. This perspective sees leadership education as to do with the transference of a specific body of knowledge to the student. This implies that the student will then regurgitate a set of "right" answers in a summative assessment process, which will give them the rubber stamp of being educated in leadership. In support Schoemaker (2008) suggests that excessive reductionism and functional specialization in leadership education is unlikely to provide a useful platform for effective leaders. His survey of more than 100 global senior managers argues for leaders to be able to apply holistic thinking, balancing analysis and intuition in the resolution of complex postmodern challenges, such as living with ambiguity and practicing flexibility in responding to the business challenges of the 21st century.

2.6.6   Business Schools as Manipulators of Norms and Values

There is much said and implied in the literature about the role of business schools as manipulators of social norms and values, or as indoctrinators of students towards a particular social or political paradigm. For this reason, the design of this research included an interview question to the management of the Business Schools in the sample, which broadly attempted to tap into these covert elements, which may or may not be lurking namelessly in the curriculum, in

management value systems and culture and in the hearts and minds of the faculty. Starkey, Hatachuel and Tempest (2004) claim that the Business School has become "morally bankrupt" by fostering values such as "winning at all costs" and "personal enrichment". They believe it was value systems such as these that were at the basis of the corporate scandals of the 1990's. The link that these authors present between business schools and society does not go unnoticed and is reminiscent of the argument of the critical theorists that management and leadership is in fact a social and political entity. In a report written by Starkey and Tempest (2000) it is very clear that business school strategy, globally, is driven by the two major ranking ratings from the Business Week and the Financial Times. These two reports reflect the credibility of the schools and are perceived by prospective customers, both business and students, as being one of the key factors influencing their choice of school. A look at the criteria that make up these rating scales reveals some interesting information about the underlying value system.

The Financial Times MBA rating criteria for the 2000 survey were :

Salary today: This figure is a weighted average of this year's and last year's average salary in US $ three years after graduation.

Weighted salary: The average "salary today" with adjustment for salary variation between industry sectors. The figure is a weighted average of this year's and last year's average salary.

Salary percentage increase: The increase in "weighted salary" from the beginning of the MBA in 1999 as a percentage of the pre-MBA salary.

Value for money: the rate of return between the start of the MBA for each dollar spent on the course.

Career progress: The change in size of company in which the alumni are employed and level of seniority achieved three years after graduation measure progression.

Aims achieved: The extent to which alumni fulfilled their goals or reasons for doing an MBA. This is measured as a percentage of total returns for a school.

Placement success: The percentage 1996 alumni that gained employment with the help of career advice.

Employed at three months: The percentage of the most recent graduating class that had gained employment within three months.

Alumni recommendation: The percentage of recommendations by 1996 alumni who were asked to endorse a business school other than the one they attended.

Women faculty: Percentage of female faculty.

Women Students : Percentage of female students.

Women Board: Female members of advisory board as a percentage.

International Faculty: The percentage of faculty that is international, for example, faculty whose nationality is different to the country of employment.

International students: Percentage of international students.

International board : Percentage of board that are international.

International mobility: A rating system that measures the school with the most internationally mobile alumni based on the movements of 1996 graduates.

International course content: Weighted average of four criteria that measure international exposure in the course.

Languages: Number of languages required on start of MBA and on completion of MBA.

Faculty with PhD: Percentage of faculty with a doctorate.

PhD graduate rating: Number of Phd graduates from the most recent graduating class with added weighting for those Phd's that have taken up a faculty position at one of the top 50 schools from the 1999 rankings, with an adjustment for faculty size.

Research rating: A combination of the absolute number of publications in a selection of journals and an adjusted total that takes into account faculty size.

A review of these criteria reveal that they are very focused around a capitalistic viewpoint, with the first eight, that is, nearly 40%, being primarily focused on return on investment for the student. The criteria also reflect elements that would influence the credibility and accreditation of the institution. Much of the remainder target the quality of faculty and research outputs. This component relating to intellectual capital, was first added as a criteria only after a decade of the rankings being in existence. According to the Starkey et al. (2004) report, this addition was motivated by an acknowledgement of the fact that there was more to an MBA than graduates earning more money, but that these graduates should be exposed to leading thinking in business that will influence business long after the students have graduated. Although this is a move towards a more coherent assessment of a business school, a thorough analysis of what an

effective leader (MBA graduate) would look like is, that is, an outcomes based approach, is still missing from the equation.

A look at the 2008 survey reveals very few changes in the criteria, with weighted salary information and salary increase data making up forty percent of the ranking. These are the most heavily weighted components of the ranking for each school. Information from the World Bank on purchasing power is also factored into the ratings. Information relating to the publication output of academics, international representation on the board, international experience and doctoral rankings of academics remain as important criteria remain unchanged almost a decade later. Clearly the materialistic value system, related to a capitalist economy, is unchanged.

Rankings appear to be critical aspects of credibility in the eyes of business school stakeholders and their power to influence is evident in the manner in which they often drive transformation in curricula design (Elsbach and Kramer, 1966; Gioia and Corly, 2002; Morgeson and Nahrgang, 2008). This influence is also evident in the external perceptions of students that rankings are somehow associated with more relevant curricula that are more closely aligned to the needs of leaders in practice. Rubin and Dierdorff's (2009) study clearly shows flaws in this perception. They examined the relevance of business school curriculum to the core competencies of management and leadership and showed that curriculum relevance was not a differentiator in the top 30 schools as ranked by Business Week. Clearly, this ranking process is an input based model where the underlying motive of the business school is to conform as closely as possible to the criteria, in order to attract the best students and to retain and grow the client base of organizations that are prospective employers of their students, and who will also possibly provide students to the business school. Problems with rankings as researched based instruments relying on statistical output are raised by Jain and Goloskinski (2009) who highlight the fallibility of quantitative research tools. They feel that the rankings exert an exaggerated influence on student, and other stakeholder perceptions. Their suspicion of statistics is clearly revealed in the following quotation:

In careless hands, numbers can hide as much as they reveal. Of course exceptionally careful hands, if unchecked, can manipulate the figures with equal dexterity.

<div align="center">Jain and Goloskinski (2009, p. 99)</div>

The latter part of this quotation reflects an underlying suspicion that business schools attempt to influence the status quo in some way. The aforegoing research suggests that they may try to influence students to adopt a capitalistic paradigm in relation to business. Jain and Goloskinski's (2009, p. 100) main concern is that the degree of influence of these rankings appears to be extreme in that many external stakeholders view them as a "profound truth" that compromises a well researched decision relating to the choice of a school at which to study. They also feel that business school leadership can be erroneously influenced to change strategy based on the ranking criteria and thus divert their attention away from their core strengths. The researcher agrees, but also suggests that the rankings, rather than their core purpose of developing effective leaders, becomes the Holy Grail.

Jain and Goloskinski (2009, p. 105) warn that marketers in business schools should regard rankings as part of a "comprehensive feedback portfolio" and that they should seek ways to add value for their stakeholders "lest these institutions risk tumbling into irrelevance.".

At no point in this article, or in the criteria mentioned, does anybody look at the qualities that would support a successful and effective postmodern leader, and to what extent these are part of the school curricula, as part of the criteria for the success of the business school. The report of Starkey and Tempest (ibid) points to a major problem relating to the legitimacy of the league tables in that, they say, they preclude a more significant discourse about the role of the business school in a postmodern economy and its contribution to economic development. They argue that competitive advantage depends on, amongst other things, management practice. This is the first implied allusion to leadership in the sense that we could say that it would be the alumni of the business schools who as leaders, would develop business strategy that would support a contribution to economic development. This argument partially supports the researcher's concerns about the materialistic focus of business schools on profits at the expense of social

responsibilities and a contribution to economic and community sustainability and development. The latter concerns would find support in the domain of the critical management and postmodern theorists however.   We seem to have somehow lost the original plot that students go to business school to learn how to be more effective at leading and managing successful organizations.   We have superseded that objective with greed in the form of optimizing, sometimes at all costs, the financial returns of doing an MBA.   Business schools, instead of retaining their independence as a bastion of credible knowledge production, appear to kowtow to the demands of students who see them as a means for making more money.   An interesting study by Porter (1988) exposes the lack of impact of business schools on management and leadership competence. He refers to a survey which examined the directors of over 2000 quoted companies conducted by Management Today (Rigby, 1995: 66-8) which discovered that only 2 per cent of these managers had an MBA.   A survey in 1992 indicated that half of the managers reported that they had received either little or far too little training, with one in eight having no training at all. What the author does not comment on is the quality of these managers who had had no formal training, nor does it make any comparisons in effectiveness between the MBA managers and non-MBA managers.   Starkey and Tempest (ibid) note that the need to improve the quality of managers in the Untied Kingdom did lead to growth in business schools, however, they do not say whether these additional schools contributed in any way to an improvement in management and/or leadership effectiveness.

Although many writers have applauded the American system and other countries such as the United Kingdom have adopted the American model (Starkey and Tempest, ibid), Locke (1998) poses the following questions :

- Did American graduate schools of management and their MBA's have anything to do with the creation initially of the reputation of American management – he answers No.
- Did the most successful rival capitalist economies to American after the war, namely the German and the Japanese, base their success to any extent on a copied American-style system of management education - his answer is a resounding NO

- Could American-inspired forms of graduate management education, in fact be said to have done more harm to management than good? - his answer here is YES

Locke (ibid) claims that if American management has prospered, it has been in spite of the creation of graduate management education in academia. In describing the chaos perpetrated by business schools, Locke (ibid) has this to say :

> …it is not so much deficient curricula as it is the sociological effect that business schools have had on operation management that makes them dysfunctional. Because these schools create a special managerial elite, tell that its members know more than others in an organization, put this elite on fast-track careers that pay them lots of money and lets them jump about in their careers from company to company, the schools themselves contribute to the creation of the sort of management that is detrimental to the promotion of the organizational cohesion that is critical to success at the operational level. (Locke, 1998: 156).

The above discourse reveals a business school paradigm that follows neoclassical economic theory which is responsive to supply and demand and where profit maximization is the key objective. This traditional economic theory is the framework for a capitalist economy. The approach would be criticized by the critical theorists and rejected by the postmodernists for its narrow, linear approach that is antithetical to the complexity of the 21st century and which has no place for socio-political influences. Starkey and Tempest's (2000) report recommendations are notably directed away from this kind of rationalist, reductionist paradigm, calling for a move to a paradigm of thought that advocates networks and relationships with stakeholders, to determine strategic objectives. Saxenian (1996, p. 57) argued that "a vibrant industrial system depends upon a complex network of social and institutional relationships", and that "network systems flourish in regional agglomerations where repeated interaction builds shared identities and mutual trust". Starkey et al. (2004) propose an interdisciplinary model, which would support integration between the business school and business and management. Also critical in this interconnection would be representation from the universities applied departments, for example engineering and the computer sciences. They feel that this type of model would be better

positioned to deliver to the needs of the new economy. In terms of this research, the acknowledgement of the value of an interdisciplinary model for business schools is noted The move towards collaboration, an acknowledgement of the socio-political context and the critical role of discourse all echo the main precepts of the critical theorists and the postmodernists. The inclusion of transdisciplinarity into this model, would extend the discussion into a knowledge generating experience which has the potential to provide creative insights into the strategy, role and contribution of business schools to business and to a vibrant, sustainable economy. Although not the unit of analysis of this research, the report of Starkey et al. (2004) reveals the potential for transdisciplinarity to be incorporated not only at the student learning level, but at the strategic level of the management of the school.

2.7 The Implementation of a Radical, Postmodern Andragogy

Having reviewed transdisciplinarity and various theoretical models that have commonalities with it and the way in which it can enrich leadership development in the MBA classroom, I now turn to the issue of how to go about implementing such an approach.

Theorists Cavanaugh and Prasad (1996) take issue with the positivistic nature of traditional university and business school andragogy. They say that this preoccupation with linear, objective relationships and solutions, has its roots in the engineering profession and claim that it has no place in the social and relational domain of management. They make reference to a proliferation of complaints of this nature for example, Bernstein, (1976) and Feyerabend, (1988), emanating from more than a quarter of a century ago. Positivism, so the critique goes, supports the notion of management as a control mechanism which denies the humanistic nature of its subjects. Critics claim that this control has as its core, the need to gain economic or other advantage over the managed. Thus positivism opens the door for indoctrination, an anathema to the critical theorists. It is of interest that the theorists referenced in this section have raised their concerns in the 80's and 90's and sometimes even in the 70's and yet this research still has relevance in the early 21st century, as these issues have still not been embraced. The arguments raised by Aristotle in Chia and Holt (2008) show that these issues have their roots in an era far further back in history than that 1980's and 90's.

Given the movement from positivism and management controls to the highly turbulent socially relevant world of the 21st century, some fundamental changes in andragogical thinking need to emerge in tandem with the transformation of the world of leaders.   Given the radical way in which the modern world has transformed into the postmodern world, mere modifications to modernist pedagogy will fall far short of what is needed in order to develop effective leaders in a postmodern context. Schoemaker (2008) calls for the management of ambiguity and paradox to be central in business management and leadership education as opposed to the analyzing of well-structured risks or trade-offs. Schoemaker's research offers the following suggestions regarding imperatives for a new business model in the 21st century which management and leadership developers should take cognizance of in their curriculum development :

- View planning as learning rather than prediction and control
- Always frame complex business problems through multiple disciplinary lenses
- Master the art of constructive dialogue with diverse global constituents, representing perhaps conflicting ideologies and value systems
- Cultivate the human side of leadership, especially in entrepreneurial and creative ventures
- Appreciate the counter-intuitive nature of complex systems, especially when non-linear
- Learn how to manage uncertainty rather than try to predict, control or subjugate it
- Properly balance descriptive and normative models to arrive at truly practical solutions
- Move from a firm-centric view of business towards network and ecological perspectives
- Practice the art of self-renewal, individually, in teams and organizationally

- Reinsert ethics and morality in the training and development of tomorrow's leaders

<div align="right">(Schoemaker, 2008:127)</div>

In response to the above, Schoemaker points out the implications for business schools and argues on three levels. Firstly he says that teaching should be focused around addressing real world problems, it should encourage cross disciplinary instructor teams to co-teach all classes, it should bring stakeholders into the teaching role and should allow students to become co-creators of the educational content and learning experience. Here the synergies with transdisciplinarity and critical management theory are evident. On the research level Schoemaker calls for research to take on complex, relevant problems, to encourage cross and multidisciplinary engagement in research teams, to partner with thought leaders in the stakeholder base and to participate in national and global dialogues about business and, by implication, leadership. On an institutional level he calls for organization around clinical domains rather than pure academic disciplines, encouraging and rewarding research partnerships and business relationships between academics and business stakeholders and a break away from the rigid constraints of the "ivory tower". In a radical departure from modernist hierarchies in business schools Schoemaker suggests that curriculum is designed around business challenges rather than academic disciplines. In line with this thinking Coetzee (2009) calls for the developers of MBA curricula to debate the following questions :

- What future does humankind want?
- What kind of society will create this future?
- What kind of business does this type of society require?
- What kind of leader does this kind of business need? and,
- What kind of MBA does this kind of business leader need

These questions form part of Coetzee's debate around the need for radical change in the MBA of a new world order.

Given the above it seems evident that andragogical theorists in leadership development need to find a way to implement a radical transformation to modernist andragogy at business schools throughout the world. This research posits that transdisciplinarity as a process sympathetic to the paradigm of critical management theory, can go some way to achieving this new, radical methodology in the development of postmodern leaders.

2.7.1   The Critical Pedagogy of Grey, Knights and Willmott

Grey, Knights and Willmott (1996) argue that the key to the implementation of critical pedagogy in management and leadership schools is the problematization of knowledge. They reject the manner in which traditional pedagogy presents knowledge for students to imbibe and regurgitate in a preordained manner in examinations or other types of assessment processes. This rigid and inflexible methodology, they claim, is elitist in all manner of things as the lecturer assumes the position of expert and the value laden content of the material is presented without apology or possibly even awareness of its subjectivity. Knowledge is never problematised, students are not given the freedom to understand, question, accept, reject or critically evaluate knowledge against a background of historical context or relevance to their own experience. Cavanaugh and Prasad (1996) bring in the notion of reflexivity as key in the implementation of critical pedagogy. This reflexive process embraces the concept of authorship and seeks to encourage students to constantly evaluate the background, history and context of the authors of the knowledge they are exposed to. They call for students to interrogate management literature and to "judge the workability of an author's recommendations." (Astley, 1984). Rosen (1987) unpacks the concept of critical theory and criticism by saying that in critique all boundaries and structures of current systems must be transcended and questioned as must "our own opposing position at the same time." Cavannaugh and French (ibid) seek to free students from indoctrination and enshrine the right to fundamental resistance and questioning of any freestanding, extant theoretical position or school of thought. In lashing out against convention, elitism, meek acceptance of knowledge and a lack of innovation, critique and dynamic knowledge generation processes in traditional modernist pedagogy, these theorists offer us the delightful concept of the "radical academic" (Fraser, 1989), noting that this concept is not necessarily an oxymoron. This notion provides a vignette of the postmodern academic as a change agent, a relativist defender of the transient and contextual nature of "truth".

In order to achieve this problematization of knowledge and reflexive orientation, Grey, Knights and Willmott (1996) argue that it is necessary to allow the students to reflect critically on knowledge. They see teaching as a process of allowing students to become aware of the continuities and discontinuities of the theory with their own experiences. Through the inclusion of student experiences into the classroom, students become involved in the construction and/or modification of class content. The creation of deep dialogue and discourse in management and leadership knowledge reveal the socially relational nature of critical pedagogy. Lectures are used to a minimal extent and small groups tend to make up the main vehicle of learning where students reflect on and critically evaluate the knowledge presented to them in theory. Whereas discussion in modernist business school pedagogy serves only to familiarize students with what has already been "ordained as relevant", discussion groups in critical pedagogy are dynamic and vibrant vessels for critical engagement with the content of learning in order to critique and evaluate its relevance. Immediately the potential for learning critical thinking and developing the confidence to be innovative in thinking becomes apparent and emerges as a clear benefit of this type of andragogy. The suitability of the transdisciplinary team to this kind of reflection and evaluation is immediately clear.

It is this skill of problematization, this ability to change a student's perspective from the meek acceptance of knowledge, to the process of immediate resistance, questioning, analysis and evaluation, prior to rejecting or accepting knowledge, that will assist postmodern leaders to respond to complexity, unpredictability and ambiguity in the 21st century.

2.7.2 Knowledge-By-Exemplification

A key differentiator in learning methodology in the postmodern era, is the central role of context and society. Critical and postmodern theorists argue that learning takes place in a specific context with temporal boundaries and that it is always situated within the social milieu. For Chia and Holt (2008) context is central to their approach. Their use of sub concepts which they refer to as phronesis and metis support this. Nonaka and Toyama (2007) claim that the concept of phronesis originated in the writings of Aristotle. However, Chia and Holt (ibid) argue that phronesis is a way of knowing that is derived through immersion in the context, an experiential

type of knowing. The affective element of evaluation is predominant in social contexts. Phronesis allows for the development of solutions which are readily understood and accepted by those affected by them. The concept of phronesis is deeply social in nature, alluding to a process of knowledge generation that results within a social interaction. Notably this is what characterizes knowledge generating processes in transdisciplinary teams. This kind of knowledge is not easily sustainable, shared or represented in symbolic terms which would create a challenge for andragogy. Its nature is timeliness, that is, dependent on what is happening at the time and the contextual nature of the situation. It is also flexible and adaptable. These qualities have parallels with problem solving in a world where change is constant and where the development and application of precedent has become obsolete, as very seldom are two situations similar enough to allow the application of a past precedent, such as that of the 21st century. The concept of phronesis finds support in relationship to leadership development in the work of a number of theorists. Kirkeby (2009, p.70) talks of phronesis as having to do with "the capacity of a human being to ethically guide and develop itself as such.." and to have "the will and ability to act for the sake of the community, on the basis of reflectively affirmed duty." The synergies of this notion of phronesis with the trend in leadership theory towards ethically based leadership as in Servant Leadership (Greenleaf, 1977), Level Five Leadership (Collins, 2001) and Transformational Leadership (Bass and Avolio, 1994) are clear. In support of this moral aspect of leadership Holt (2006, p.1661) links phronesis to the development of moral character and defines it as practical wisdom and sagacity. Nonaka and Toyama (2007, p.377) discuss phronetic leadership as having knowledge creation at its core which is based on a synthesis between practice and dialogue. The element of knowledge creation in phronesis and other concepts compatible with transdisciplinarity such as reflection and constructivism are confirmed by Rayner (2009) and Beckett, Agashae and Oliver (2002). The synergies with transdisciplinarity here are clear. In linking phronesis to strategic management and leadership Halverson (2004) states that this concept is critical in choosing relevant strategic goals and to define the processes that will effective lead to their achievement. Grint (2007) confirms the value of phronesis in developing strategy. Nonaka and Toyama (2007, p.377) say the following:

> Phronetic leaders use their sense of the details to "see" or "feel" the problems of
> their organizations as solvable within local constraints, and they are able to develop

successful plans to address identified problems. In decision-making, phronetic leaders must be able to synthesize contextual knowledge accumulated through experience, with universal knowledge gained through training.

Barge and Fairhurst (2008) confirm the notion of phronesis as being a type of wisdom that relies on experience and that evolves in conversation with others. They also allude to the fact that phronesis is about value judgements that generate good, it is not about the practical aspects of management. They argue that phronesis assists leaders in the art of improvisation in unpredictable situations. The above discussion on phronesis confirms not only its strong synergies with the notion of transdisciplinarity but also that this type of learning methodology is starting to be advocated in the development of leaders.

Antonacopoulou (2010, p. S6) continues the debate around the application of phronesis to leadership development, in this instance to leadership development within the MBA program, and argues :

> A phronetic analysis of management education provides a innovative lens for understanding the power of critique in engaging academics and business practitioners in the co-creation of knowledge.

The component of co-creation of knowledge is noted together with its synergies with the notion of knowledge generation in transdisciplinary learning. Antonacopoulou sees critical thinking as core to the process of exercising phronetic judgement. She argues that the phronetic approach is critical in making the business school critical.

The second sub-concept of knowledge-by-exemplification is metis. The authors explain this concept by saying that it is a kind of intuitive wisdom, or way of knowing, that emerges with experience and that it emerges in situations that are "transient, shifting, disconcerting and ambiguous", typical of postmodern problem solving situations. It is the combination of these two sub contracts, phronesis and metis, that Chia and Holt (2008) believe support the concept of knowledge-by-exemplification. Although it is not difficult to see the merit in these knowledge generating processes that involve context, affective evaluation and which have a deeply social

nature, what the theorists fail to tell us is how a business school would retain the credibility of scientific knowledge in implementing such an andragogy, given its transient and intangible nature. However, the researcher believes that this is a challenge worth pursuing given the value of these theorists' thinking in regard to emancipatory ways of learning in a postmodern context.

2.7.3   Management as a Profession

One of the solutions proffered in response to the apparent failure of management educators to produce effective managers and leaders is to develop a management profession, much as engineers, psychologists and doctors, for example, have a professional board which governs their education and protects their standards of practice. Schoemaker (2008) notes that business has yet to define and develop "a unifying professional identity or a standard for professional certification (which the MBA presently is not)". French and Grey (1996) recognize the beginnings of a move towards professionalism in the initiatives such as the development of the British Academy of Management, the Management Charter Initiative in the United Kingdom, or the American Assembly of Collegiate Schools of Business in the United States, as well as the MBA qualification. However, these initiatives have not been developed further into professional management bodies, nor has the MBA been adopted as the educational vehicle for professional managers, in any kind of formal manner. Some of the debates which are preventing the professional initiative going forward revolve around the need for a clear understanding of what a manager does, the profit motive as problematic in a professional capacity, although it is clear that other professions have profit motives, and the general structure and framework of management as a basis for developing curriculum and standards of professional practice. Just exactly how the formalization of a current set of processes in management development, will resolve issues of competence is not clear. The argument in this research is for a radical transformation in management teaching and this is unlikely to be provided by the imposition of further control mechanisms. Cavanaugh and Prasad (1996) support this supposition in saying that the transformation required in management education has more to do with process than with a model. In terms of the objectives of this research the issue of formalization of the management development as a profession, has little impact on the nature of the andragogy applied in training leaders and thus will have little impact on the research question.

2.7.4   The Role of Dialogue in a Postmodern Andragogy

The aforegoing literature continuously emphasizes the social nature of the postmodern world and the need for the engagement of individuals from various domains in the resolution of complex problems.   The main vehicle for this kind of interaction is dialogue.   If we require our leadership students to engage meaningfully with relevant stakeholders in the resolution of complex problems in their work environment, we will have to teach them how to talk to each other.   Not in a superficial and informal discussion, but using dialogue to expose thought processes and perceptual difference, to reflect on different perspectives, to rise above opposition, rigid objectives and egotistical practices that relate to competition over power.   These notions emanate from the work of Bohm, Factor and Garrett (1991).   These same authors have some input on the manner in which dialogue should take place, in other words, what is it that we will have to teach our leadership students.   An integral discussion on what dialogue is and reflection on models of dialogue was undertaken earlier in this document.   The models of Bohm et al. (ibid), as well as Isaacs (1994), Wilber (1997), Scharmer (2001) and Gunnlaugson (2007) have provided insight on what to incorporate into a leadership development andragogy in order to support a transdisciplinary approach to problem solving.

2.8   Transdisciplinarity and Leadership Development

The main concern of this research is to explore whether a transdisciplinary andragogy can provide value to the process of leadership development within the MBA classroom, particularly in regard to the preparation of the emerging leader for the turbulence and ambiguity of the postmodern context.   In the literature it is often difficult to separate transdisciplinarity from learning.   Many of the definitions of transdisciplinarity contain references to a mutual learning process or joint problem solving.   For example, Scholz, Mieg and Oswald (2000, p.486), in a discourse relating to a transdisciplinary effort in groundwater management, stated that "Transdisciplinarity is a principle for organizing processes of mutual learning and problem solving between science and society. Thus, transdisciplinarity may contribute to sustainable development". It is this application to the real world which, apart from the advantages of disciplinary collaboration and learning, stands out as a key benefit of transdisciplinary learning in leadership development. The issue of transfer of learning from the classroom to the world of work has long been a

challenge that pedagogical researchers have grappled with. The nature of transdisciplinarity is such that the theoretical and the practical domains converge in the learning methodology. Transdisciplinarity is posited, in this research, as a tool or methodology for addressing complexity in leadership development in a postmodern context.

Case studies have been criticized for being extensively used in leadership development and particularly in MBA programs. The case study was the "brain child" of Harvard Business School and has since been applied prolifically throughout the domain of leadership development. Scholz, Lang, Wiek, Walter and Stauffacher (2006) acknowledge that the case study method of teaching has its limitations, however they claim that transdisciplinary case study teams are powerful tools for teaching in complex situations and in supporting what they term as "sustainable learning". Emphasis is again on the value of transdisciplinarity in grappling with real-world problems – in their words "the case study approach can connect complex real-world problems with scientific theory" .

Ramadier (2004) criticizes the disciplinary approach to dealing with complex problems by stating that this approach fails when it encounters the complexity of the applied setting. He states that the reason for this is that discipline based analysis of problems results in the emergence of concepts which lack synergy with the wider context of application. Ramadier (ibid) places the problem of compartmentalized knowledge, not so much in the production of knowledge, for example in universities, but at the heart of how disciplines apply or transfer their knowledge to society at large. Thus he states, "transdisciplinarity can only become possible if disciplinary thinking changes". This is an insightful perspective that sheds light on how one might achieve disciplinary integration in leadership development and more specifically, it points to a temporal aspect of the positioning of interdisciplinary engagement. That is, the implication of his theory is that universities should teach the disciplines but at some point there should be a place in the curriculum to bring the disciplines together, as we assist leaders to apply and transfer their discipline based knowledge into a complex world. It would seem appropriate that this "mixing" of disciplinary knowledge would be positioned towards the end of the MBA curriculum to enable developing leaders to grasp the basics within the disciplines in order to be able to bring them together as an holistic leadership methodology, before moving out into the

applied context.   These insights of Ramadier (2004) represent an attempt at defining the process of inter and transdisciplinary process which is lacking in much of the literature on this topic and in this sense it adds significant value to the discourse and to how transdisciplinary procedures could be applied in leadership development.   Although the critical theorists may be more comfortable with a blurring of the boundaries on a broad level, Ramadier's (ibid) thoughts around transdisciplinary process may represent a more comfortable departure point for teachers in business schools who are entrenched in the disciplinary tradition and may represent a starting point for an evolutionary turning point in leadership development in a complex, postmodern context.

The following quotation taken from an article by Jain and Golosinski (2009, p. 102) provides support for a transdisciplinary methodology in developing emerging leaders:

> One important move in this direction (encouraging faculty and students to produce meaningful solutions to significant real-world problems) is for school leaders to establish a culture of collaboration, one that spans disciplines within the institution. Even better, this collaboration should extend from the business school and across the entire university to find opportunities for broader partnerships.   One may readily see how alliances between management scholars and their colleagues in medicine, engineering, public policy or media, for example, can stimulate path-breaking research and foster collegiality and loyalty among professors who value having the resources to achieve their aspirations. Indeed, business schools and their stakeholders should look to address the "big" challenges that face society, taking the considered risks that can lead to fruitful solutions in areas such as healthcare or the environment. By encouraging niche experts to "dig deeper" and bring their thought leadership to bear in new contexts, cross-disciplinary collaboration spurs innovation, promises to "ask questions that matter" and works to identify solutions to critical social challenges.

The nature of the postmodern context has been described as a complex one. In support Calton and Payne (2003) discuss the complex notion of paradox and suggest that "messy, paradoxically framed problems are a special preoccupation of the business and society field". Glynn, Barr and

Dacin (2000) criticize the common approach by management to paradoxical situations, which they say is try to and simplify them; they state that this "impulse to organize is antithetical to the effort to pluralize". They argue that this reductionist approach does not fully address the learning potential inherent in paradoxical complexity. In contrast the interdisciplinary approach has been found to deliver outcomes that would support the ability of the students to grapple with complexity. Field, Lee and Field (1994) identify the ability to tolerate ambiguity or paradox, enhanced creativity, original insights or unconventional thinking and enhanced critical thinking as outcomes of an interdisciplinary learning process

Studies by Ackerman (1989) identify flexible thinking and the ability to generate analogies and metaphors as outcomes of interdisciplinary learning. Ivanitskaya et al. (2002, p.101) give further support to this by stating that their studies have revealed that in interdisciplinary learning "the knowledge structure is honed though a gradual advancement in higher order cognition – specifically, metacognitive skills, critical thinking and personal epistemology." In support Entwistle and Ramsden, (1983), differentiate between deep and surface learning and say that deep learning requires students to search out meaning in the learning process, to reflect on their learning and to create understanding which allows for the internalization of knowledge. They argue that interdisciplinary learning processes allow the students to engage in deep learning. Zhang and Richarde (1999) argue that the value of interdisciplinary learning is evident in the manner in which it empowers the student learning process by making the student less reliant on guidance and absolute knowledge and supports a process of building confidence in students in their beliefs and actions. In support, Riggio, Ciulla and Sorenson (2003) argue that leadership development programs should be multidisciplinary and grounded in theory.

It is argued that all of the aforegoing studies demonstrate the potential that interdisciplinary learning has for helping students embrace complexity. The outcomes of interdisciplinary learning and the competencies it allows to develop are clearly those which will support and empower a leader to make effective decisions in a turbulent and often ambiguous environment. The identification of confidence building as an outcome of interdisciplinary learning, mentioned by some of these researchers, has the potential to develop self reliance in emerging leaders who will need to make difficult decisions in a context where there is no precedent from the past to

support their conclusions.   Cox, Pearce and Sims (2003, p. 172) refer to the notion of shared leadership, having synergies with a transdisciplinary team of leaders, and state that "complex, creative and organizationally critical tasks suggest the need for shared leadership."

Songca (2006) positions her argument for a transdisciplinary approach to leadership development within an African perspective and calls for an innovative approach to leadership development in a complex environment.   She states that complex problems, such as those facing African and/or postmodern leaders, cannot be resolved by a single discipline.   The input of a number of theoretical frameworks and perspectives is required to find an holistic solution to a complex set of circumstances.   She discusses the link between complexity and interdisciplinarity and the role of integration in the process of resolving problems. Transdisciplinarity blurs the boundaries of the various disciplines, and talks of going beyond all disciplines. Songca reveals the synergy with the postmodern leadership paradigm by arguing that transdisciplinarity is about transition and movement through the sharing of knowledge across disciplines. This is a truly innovative approach and a brave one given that the Newtonian approach to discipline, structure and separation is a strongly entrenched tradition in most organizations.   Songca underlines the importance of cross-fertilisation, alliances, dialogue and cross pollination in the learning environment and in the acquisition of knowledge that understands the complexity of its subject.   Given the need for leaders to be able to cope with the resolution of complex problems, this approach brings fresh insight to a problem that facilitators of leadership development have long grappled with.   McGregor (2004) says that the process of collaboration across disciplines will reveal an order within complexity which will support a process of generating new and coherent structures or knowledge.

The work of French and Grey (1996) centres around critical management theory and a critical pedagogy that would address the concerns of management and leadership development in the postmodern context. Critical pedagogy, unlike modernist pedagogy which tends to retain close synergies with traditional hierarchies and processes, represents the radical departure from tradition that is demanded by the changes in the 21st century challenges for leaders.   Most importantly this pedagogy opens up the student/teacher relationship to allow students freedom of thought, the opportunity to engage in critical analysis, innovation and knowledge generation. Transdisciplinarity as a vehicle for the application of critical pedagogy, provides the important

elements of knowledge generation and critical thinking in transdisciplinary teams. These teams are a vessel for cognitively sophisticated think tanks that acknowledge that the complexity of postmodern leadership issues go way beyond the domain of an individual leader or an individual discipline.

The issue of effectively managing diversity, a significant challenge for leaders in a postmodern world, is one that is addressed within a transdisciplinary approach. In support of this, Songca's (2006) view is that preoccupation with the traditional disciplinary approach is the achilles heel of solving complex social and, by implication, organizational problems. Her approach seems logical and innovative given that the postmodern world is characterized by cultural diversity amongst its people, a dynamic changing global environment and complex business issues which have little precedent upon which to base decisions. This contribution to diversity through the application of transdisciplinary groups is supported Horlick-Jones and Simes (2004) as they argue about the radical differences in perceptions by different cultural groups and sub groups and how risk and threat are viewed differently in diverse groups. They acknowledge that there is a thread of generalizable perspective that runs across groups complemented by a degree of specificity of perception that is related to an individual or a group. They argue therefore that the dynamic is a "tension between materiality and sociality". It is this tension that could be explored and ameliorated in a transdisciplinary group engagement. This depth of interaction in diverse groups must contribute significantly to the postmodern leadership challenge of managing diversity. Transdisciplinary engagement engages not only difference on the macro level such as cultural and political differences, but also at the micro individual level which address diversity in perceptions, values and the processes and experiences that influence individual development. Tynjala et al. (2003) support transdisciplinarity and its socio-cultural approach in that it has the potential to integrate learning and the work environment. In terms of leadership development then, it can be said that utilizing this approach should result in more effective application of learning in the work environment.

If one follows the line of thinking of Songca (2006) and the complexity of knowledge, it follows that learning methodology has to change from the traditional linear approach which had an expectation of right or wrong answers, or at least certainty in terms of what solutions should be, to a much more open interactive paradigm of learning where ideas are shared and debated, where

dialogue is central to the learning process and where the emergence of new knowledge in relation to new dilemmas and complex problems, must be the preferred outcome. An interdependency between student and teacher, as well as between disciplines, defines the new postmodern learning paradigm. Traditional power structures have no place as an egalitarian learning environment emerges where mutual learning is valued and all participants have equal standing and all ideas are respected and evaluated in the light of the objective .

In summary, the review of the literature suggests that there is substantial criticism relating to the discipline-based method of teaching in MBA programs. It also exposes some emancipatory thinking in terms of learning methodologies in leadership development. Those that have synergies with transdisciplinary learning are the social-constructivists and the critical management theorists. It would appear that although transdisciplinarity is seen as valuable in a learning context, there has not been much application of this theoretical paradigm in leadership development, particularly not in MBA education. A number of theorists referred to support the application of transdisciplinary learning in a leadership context and the value it has to add to leadership development in a postmodern context, characterized by complexity, ambiguity, uncertainty and paradox.

The aforegoing discussion on the implementation of a radical transdisciplinary andragogy has drawn on the work of many theorists who can add value to the process of implementation of a transdisciplinary andragogy in MBA classrooms. It can be seen from this discussion, that for some time now, theorists have been grappling with this problem, and that the principles of transdisciplinarity have much to add in addressing the challenges faced by those entrusted with the development of our 21st Century leaders.

What stands out in the review of the literature on the topic of leadership development in a postmodern context, is that it appears that leadership development methodology has not evolved to maintain alignment with the epic changes in the environment that leaders find themselves in today. Even simple systems theory carries within it the notion of the interdependence of the components of a system. But not even this early, relatively simple notion of complexity is reflected in the discipline-based teaching hierarchies found in business schools today. It is therefore evident that business schools are producing MBA graduates who are ill-equipped to face the challenges of the postmodern business world, and it is relatively easy to see why there

have been so many examples of leadership failure, as discussed in this review.   This research provides a postmodern solution to a postmodern problem by making suggestions for the incorporation of transdisciplinary leadership development methodologies that will produce leaders who are prepared for the complexity of the postmodern world.

CHAPTER THREE

METHODOLOGY

3.1   Introduction

This chapter describes the approach taken in regard to research methodology in this study.   It aims to provide a full description of the type of research, the sample, the methods of data collection and analysis and the manner in which the main themes were identified and conclusions drawn.   It also positions the research within the numerous debates on qualitative research methodology.

3.2   The Research Paradigm

The methodology is qualitative involving a three-pronged approach. It involves the observation of Master of Business Administration (MBA) programs in business schools, supported by interviews with lecturers and deans, and the scrutiny of curriculum documentation.   The ontological nature of the study, being the study of the postmodern context and its realities for leadership is according to Lee (1999) something that distinguishes it as qualitative research. The subjective involvement of the researcher as an academic herself, who has strong feelings regarding the quality of the development of leaders, is also typical of a qualitative approach. The researcher is not an objective observer having control over all influential variables, such as is the case in quantitative research.   This research relies on an inductive approach, multivariate and multiprocess interactions and context specific methods, as outlined by Lee (ibid) as being typical of the qualitative method.   The analysis utilizes an inductive approach.   Leedy and Ormrod (2005, p.32) describe inductive reasoning process as beginning with an observation which is then explored through the research.   The researcher began this process of enquiry with a question regarding the lack of synergy between teaching/learning methods in the MBA classroom, and the nature of the context in which the students, in this case emerging leaders, would work and lead. In line with the work of Cassel and Symon (1994) who differentiate between quantitative and qualitative research, this research falls into the qualitative category by being a subjective exploration by the researcher of an organizational phenomena, that is,

leadership development, that is more focused on understanding the quality of the leadership development process, rather than on predicting outcomes. Cassell and Symon (2004) who focus on qualitative research in the work context, argue that qualitative processes and research adopting alternative epistemological perspectives, hold out the promise of new insights They do this by adopting a critical stance on accepted practices and by approaching research topics with different objectives. In the world of quantitative research the objective, value free environment is the holy grail. The value systems in business schools however, are endemic to the choices made in regard to the strategy of the business school and what is, and what is not incorporated into learning curriculums. The subjective views of the lecturers and deans were important in the manner in which they influenced the learning methodologies applied in the school. Denzin and Lincoln (2006) reject the preoccupation of quantitative science with objectivity, saying that it ignores the richness of subjective experience which is so important to understanding phenomena in a complex, social context. These authors argue than in pursuit of a purely objective science, quantitative researchers ignore morality and politics, which are fundamental in social science. It would not have been possible to conduct this research in the quantitative paradigm, given the important influence of subjective elements such as ethics, values and political paradigms. Holloway and Wheeler (1996) refer to qualitative research as being "holistic, emic, contextualized, interpretive and immersed." This statement reflects the subjective characteristics of qualitative research. This notion is borne out by Munhall (2001) who states that qualitative research is, among other things, focused on the human experience. Munhall expands by stating that in qualitative research there is normally a high level of researcher involvement and the production of "descriptive and/or narrative data". The researcher in this study was immersed in the culture of the MBA classroom, and being an MBA lecturer herself, was not able to separate herself from her own preconceived views and become an entirely cultural neutral, objective researcher. The manner in which the researcher managed this subjective position, it explained later in this thesis, in the section on "The Credibility of the Researcher".

Any research study will naturally make assumptions about the nature of social science and reality.   The labile nature of the postmodern context, necessitates an approach which is antithetical to the objective, positivistic, deterministic epistemology that pursues rigid truths.

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This research will naturally gravitate to reflect an epistemology on the subjective extreme of the Burrell and Morgan (1979) model. Here the nominalist position allows for an epistemology that reflects the fluid nature of the postmodern world. The nominalist, according to these theorists, denies the existence of a worldly structure that is immutable. This research is firmly placed in the anti-positivistic dimension as it is not concerned with the search for incontrovertible laws, but rather it explores a learning methodology that might be compatible with the postmodern context. The researcher does not attempt to generate an objective knowledge of the nature of business leadership development in the postmodern world (Burrell and Morgan, 1979, p.23) rather seeks to understand the changeable nature of the postmodern era and how this influences the way we develop leaders who operate in that context. Burrell and Morgan discuss the voluntarism-determinism debate in terms of human nature and this research will view individuals as being autonomous and free-willed however, an issue that has emerged within the challenges of postmodernism, and which is not accounted for in the Burrell and Morgan (ibid) model, is that of sustainability on all levels of society. The threats to the sustainability of the global environment have resulted in areas of responsibility which curtail the autonomy of postmodern leaders, as they are challenged with their own role in responding to these sustainability threats worldwide. The emergence of notions such as ethics, business ethics, corporate and social responsibility are evidence of the forces of sustainability that leaders will need to embrace, and which will place limits on their autonomy. Thus, in terms of the Burrell and Morgan model and the concept of individual free-will and autonomy, this needs to be viewed against the sustainability challenge. In its antithetical stance, this research falls within the ideographic paradigm however, another limitation of the Burrell and Morgan model is noted in that it describes the nature of ideographic research as being focused on obtaining a full understanding of the situation or context that is the focus of study. However, what is inherent in postmodern situations is their lability, their constantly changing nature, and therefore it may not be possible to do any more than describe or understand the context of leadership development within a given temporal context within which the work takes place. The Burrell and Morgan model is therefore somewhat limited in relation to research in the postmodern context as it fails to take into account this notion of change that is so constant and consistent, that it contradicts the notion of generating an understanding of a particular situation, which would demonstrate a validity that would remain constant over time.

Burrell and Morgan (ibid) extend their thinking in this book through other more enlightened theories of society by putting forward a discussion on a sociological model which sees "regulation" and "radical change" as two points on the end of a continuum. This model is considered to be enlightened since the article was written in the late 1970's and the thinking was certainly ahead of its time in anticipating, on the radical change side of the model, the complexity and ambiguity of the 21st century. These authors have a predisposition for clearly delineating and classifying the nature of society however, and as scientists who are generating knowledge on this topic, they value the rigorous and systematic treatment of their topic. However, it could be argued that the turbulent and unpredictable nature of the postmodern context would not sit comfortably within stable classificatory models. The theme running through the Burrell and Morgan (ibid) article, with its clear preference for looking at the nature of society as being an interaction between two opposing realities, for example regulation and radical change, may also run the risk of oversimplifying the nature of reality. The authors do not give sufficient discussion to the detail in the model, for a further critique to be undertaken. Suffice it to say that the sociology of radical change is a typology which is most compatible with the postmodern context, within with this research takes place.

A more recent discourse on the political nature of qualitative research is offered by Denzin and Lincoln (2006). Their description of the post-pragmatist viewpoint is one that offers a description of qualitative research that has synergies with this research. These authors describe the nature of the post-pragmatist as some-one who :

> acts as a moral agent, one whose political goal is the creation of greater individual freedom in the broader social order. (Denzin and Lincoln, 2006, p. 776).

They also argue that the pragmatists asks :

> What are the moral and ethical consequences of these effects for lived human experience? Do they contribute to an ethical self-consciousness that is critical and reflexive, empowering people with a language and a set of pedagogical practices that turn oppression into freedom, despair into hope, hatred into love, and doubt

into trust? Do they engender a critical racial self-awareness that contributes to utopian dreams of racial equality and racial justice? If people are being oppressed, denied freedom or dying because of these effects, then the action, of course is morally indefensible.   (Denzin and Lincoln, 2006, p.777).

The element of this research that questions the manner in which business school philosophy underpins and sustains a capitalistic socio-political paradigm is in effect, the researcher taking up the role of a moral agent in questioning the way in which this approach encroaches on individual freedom and compromises transformation, not only in andragogy, but in the potential for business schools to support social growth and development involving paradigms of thought that may be more appropriate in a free and fair social order.

Jain and Golosinksi (2009, p. 104) are skeptical of the limitations of research methods arguing that science is often good at finding what it is looking for but that this occurs at the cost of excluding some of the complexity and nuance of the world through the application of "methodological filters".

This research conforms primarily to the characteristics of qualitative research outlined by Peshkin (1993).   Peshkin (ibid) states that qualitative research studies typically serve one or more of the following purposes :

Description : They reveal the nature of certain situations, settings, processes, relationships, systems or people.   In this research I explore the nature of leadership development in MBA programs.

Interpretation : They enable a researcher to gain new insights into a particular phenomenon. In this case the researcher attempts to gain new insights into the quality of leadership development in relation to the demands of leadership in a postmodern context

Verification : They allow a researcher to test the validity of assumptions, claims, theories and generalizations in a real world context.   In this research the assumptions that academics make about how they should go about developing leaders are examined and tested against extant theory relating to the challenges of leadership in a postmodern context

Evaluation :   This is where the researcher looks for a means to judge the effectiveness of a particular phenomenon and in this instance that is the effectiveness of leadership development in

MBA programs, in terms of how adequately they prepare leaders for coping with postmodern challenges.   This research has commonalities with that conducted by De Dea Roglio and Light (2009) where there are subjective undertones to the data.   The data collected represents the subjective views of lecturers and deans in the various schools in the sample.   In addition to the above this research examines the nature of transdisciplinary learning and whether it can add value to the development of leaders in a postmodern context.

The recommendations of Pratt (2009, p.857) regarding the writing of a compelling and focused account in qualitative research have been taken into account in this research design.   These conditions are as follows :

An account that :
1.   Honors the worldview of informants,
2.   Provides sufficient evidence for claims,
3.   Significantly contributes to extant theory

The researcher has attempted to satisfy the above three conditions as far as is realistically possible in the manner in which the thesis has been written.

3.3   Unit of Analysis

The choice of the MBA program, and more specifically the lecturers on the program, as a unit of analysis is based on the fact that MBA programs have traditionally been the means for developing generations of business leaders.   The significance of the choice of an MBA as a means for developing leadership qualities is evident in the fact that in 2005 it was estimated that there were over 50 000 MBA students studying at business schools in Europe, which is considered to be a growing market (Petersen, 2008).   In the United States however, 250 000 graduates are being produced annually (Petersen, ibid).   Coherent numbers in South Africa are difficult to locate.   As a guideline, an article in MBACOZA estimated that over 4000 MBA students enroll at local business schools every year in South Africa however, a Council for Higher Education Report stated that 7303 students enrolled for an MBA in 2002.   It would appear, from these figures, that the MBA is a popular choice for individuals wanting to develop

their management and leadership skills and to rise to senior positions in organizations worldwide.

In a study undertaken by Rubin and Dierdorff (2009) only 28% of graduates reported that they did not enter into a management or leadership position on graduation. They cite similar studies by GMAC (2004) which indicated that employers stated that between 68 and 91% of MBA graduates are placed into middle or senior management positions. This data appears to support the utilization of MBA graduates as potential leaders in organizations, after graduation.

3.4   Research Objectives

The purpose of this research is to examine the potential of a transdisciplinary approach to leadership development, as it occurs in MBA programs, as an effective andragogy for assisting developing leaders to be effective in a postmodern context. It provides a critical analysis of the silo'd nature of the disciplinary approach, currently characteristic of university structures. Traditionally universities and business schools approach leadership development utilising a discipline-based approach. MBA programs are structured around functional modules which align to a specific discipline, for example finance, leadership, marketing, operations and human resource modules. These are taught separately and seldom are the various modules integrated as they are in the real world. This disciplinary approach stands in stark contrast to the complexity, unpredictability and ambiguity present in the postmodern world. The postmodern context is characterised by more questions than solutions and a need to integrate disciplines in order to deliberate the solutions to complex problems through a process of mutual knowledge generation. The word "transdisciplinary" reflects the notion of knowledge generation applicable to a specific context, in this case the context of postmodern leadership challenges.

Specific objectives of this research were :

1.   To gain an understanding of the prevailing types of learning methodologies that were being applied in MBA classrooms.

2.   To discover whether there were any examples of transdisciplinary learning being applied.

3.   To elicit information regarding the nature of the postmodern business world.

4. To juxtapose prevailing learning methodologies with the conditions faced by the postmodern leader and to survey the synergies or lack thereof, between learning methodologies and the postmodern leadership context.

5. To elicit information on the challenges facing lecturers and deans in business schools and particularly in the MBA program, in order to determine whether a transdisciplinary learning methodology would assist in finding solutions to these challenges

6. To examine, through the secondary research, the notion of transdisciplinarity and whether it held value as a learning methodology for the development of postmodern leaders, in the MBA classroom.

In achieving these objectives, the researcher was able to determine whether current MBA teaching methodologies were appropriate in relation to the business environment in which emerging leaders would operate, and whether a transdisciplinary approach had value to add in this context.

3.5   Research Problem

Discipline based learning does not adequately equip developing leaders for dealing with the challenges of a complex, unpredictable postmodern world. Universities and business schools need a leadership development andragogy that is analogous and synergistic with the nature of the world in which the student operates as a leader.   Thus the learning methodology needs to embrace the complex, unpredictable and ambiguous nature of that world.   It is posited that a transdisciplinary andragogy has the potential to add value to this process.

3.6   The Theoretical Paradigm

The theoretical paradigms that have compatibility with transdisciplinarity are those of critical management theory, postmodernism, constructivism and particularly social constructivism. Social constructivism refers to communities of practice which Brown (2006) says are evolving and starting to play a significant role in learning environments.   These communities of practice are reminiscent of group learning where students are grouped together to solve problems in the process of engaging with a learning experience.   These communities of practice have synergies

with transdisciplinarity in that the power dynamic is equalized and the teacher and the taught are equal in term of their role in the group. Johannessen and Olaisen (2006) speak of ontological constructivism which sees the distinction between social facts and constructs as irrelevant. Thus, in the context of this research, the need for leadership development is a fact and the nature of that development is a social construction, but the fact and the construction, in this view of research, become one and the same. The research paradigm is an anti-naturalist paradigm. The naturalist approach is that of understanding and prediction, which is not the objective of this research.   The anti-naturalist paradigm speaks of "the interpretation of meaning or of hermeneutic understanding", (Martin and McIntyre, 1994).   The anti-naturalist paradigm is aligned with systemic thinking and cybernetics, which has synergies with the nature of the postmodern context. Hermeneutics occupies itself with the inner reality of the individual, it does not concern itself with social structures, according to Dilthey (1976).   It is this "inner reality" of the developing leader that is liberated in a transdisciplinary learning methodology.   The research is phenomenological in that it is based on observation and introspection, but does not occupy itself with testing (Johannessen, 2005).

It is proposed that in the context of this research the links between postmodernism, critical management theory, complexity theory, social constructivism and transdisciplinary are that postmodernism provides the context, complexity theory the empirical platform, social constructivism the research paradigm and transdisciplinarity emerges as a methodology that sits well within these parameters. This approach is in concert with the emergence of critical management studies which adopt a critical or questioning approach to traditional concerns of management studies (Grey and Willmott, 2005).   It is noted that critical theory and postmodernism are empirical paradigms, with strong synergies with this research.   These two schools of thought display much convergence in thinking, however there are significant points of divergence.   These are pointed out in the literature review where the role of critical theory and postmodernism in leadership development is dealt with in more detail.   It is not the purpose of this research to delve into a detailed enquiry about the nature of critical theory and postmodernism, but some discourse into the distinctions between the two is considered necessary.   This research will focus on the synergies between these two themes and much of the discourse on transdisciplinarity that will follow, will reflect the thinking of these two paradigms

of thought. Alvesson and Deetz (1996) offer a detailed look at critical theory and postmodernism and provide examples of research approaches emanating from critical theory and postmodernism. They note that most of these have a qualitative focus, an interpretive orientation to data, and a research objective that focuses on a critique of the status quo. They also note that these theorists have previously tended to focus on the dark side of 21st century challenges, and targeted issues relating to the negative byproducts of organizations such as environmental destruction, sexual harassment, corporate crimes and racial discrimination. The researcher notes the strong social flavor of the targets of research in these two paradigms which is consistent with the postmodern and critical theorists paradigms, but also with social constructivism.

3.7   Methods of Inquiry

This research utilized classroom observations, interviews with the lecturers whose classes were observed, interviews with the Deans of the schools and a review of curriculum documentation. All of the data was utilized to support the notion that transdisciplinary learning was, or was not, evident in teaching and learning methodology at the six schools visited, and to determine whether this type of methodology would add value to the development process of emerging leaders who would operate in a complex and unpredictable postmodern environment.

3.7.1. Class Observations

Darlington and Scott (2002, p.91) highlight the unique advantages of observations and say that observation can reveal things that other kinds of data collection do not. They say that in observation we are exposed to behavior as it happens, not as it is perceived through the personal lens of an individual. Of course the perceptions of the individual, in this research, that is, the lecturers, are important and that is why the observations in this study have been supported by interviews.

The choice of observation as a method of data collection was based on the fact that the researcher wanted to obtain exposure to the prevailing teaching methodology in MBA classrooms, in order to determine whether any transdisciplinary learning was being applied. The researcher wanted to see how lecturers facilitated the notion of complexity in the classroom;

what opportunities were given to the students to grapple with complexity, paradox and ambiguity and what the personal dynamics and framework was, within which these opportunities were posed. Noted is the limitation of only being able to observe a few hours of classes for each lecturer. This limitation was somewhat ameliorated by giving the lecturers an opportunity to talk broadly about their approach to teaching and learning, in the interviews as well as reviewing available curriculum documentation.

Darlington and Scott (2002, p.77) have categorized observation based on the degree of involvement by the researcher along a continuum from complete observer, having no participation at all, to participant-as-observer at the other extreme. The researcher in this study was a complete observer, having no participation in the classes whatsoever. The researcher's role as a complete observer meant that at no time did she participate in the proceedings in the classroom, except to introduce herself and explain the reason for her attendance. This explanation did not reveal any details around the research question in order to prevent any alteration in behavior on the part of the students or the lecturers. This introduction was deemed necessary out of respect for the students and to ensure that the classroom dynamics were disturbed as little as possible. It was common during breaks in class, for the students to speak to the researcher out of interest in what she was doing. The researcher was careful to keep all informal discussions outside of the detail of the research question and most conversations centred around the researcher's experiences of different business schools that she had visited. The researcher had no connection to the observation situation, she was not a member of staff, nor was she related in any way to the students or the lecturers. The researcher did not engage at all during the classes, she did not ask questions or respond to questions. In as much as the researcher attempted to minimize the impact her presence had in the classroom it is acknowledged that there may have been some behavior modification on the part of the unit of study, that is, the lecturers. In order to minimize this impact further, the lecturers were not apprised of the nature of the research prior to the classroom observations. Interviews were sequenced after the observations and only at this stage did the researcher divulge the nature of the research.

The researcher was not interested in the content of the material being taught, rather she was interested in the manner in which the students were presented with, and how they engaged with the new knowledge. This information would be used to draw analogies between the teaching methodology in the classroom and the principles of transdisciplinary learning, which has been put forward in this research, as a useful teaching methodology for preparing emerging leaders to deal with the complexity of the postmodern world. During the observations the researcher made notes on the observation form developed for this purpose, and a summary of the findings are given in Chapter 4, Table 4.20.

Based on the nature of the research question, the research methodology utilized classroom observations to identify the use of transdisciplinary learning measures in the classroom, utilizing the indicators of communicative action suggested by Habermas (1979/81) as a basis for identifying occurrences of transdisciplinary learning in the classroom situation. These were supplemented by the researcher with additional elements for observation which she had drawn out of the literature on transdisciplinary learning. as The synergies between Habermas's concept of communicative action and transdisciplinary learning have been elaborated on previously. The following are the six conditions of Habermas for communicative action, which formed part of the conditions for observation :

Habermas Condition No 1:

Freedom to enter a discourse, check questionable claims, evaluate explanation and justifications

Habermas Condition No 2 :

Freedom to modify a given conceptual framework and alter norms

Habermas Condition No 3 :

Mutual understanding between participants

Habermas Condition No 4 :

Equal opportunity for dialogue that abides by the validity claims of truth, legitimacy,

sincerity and comprehensibility, and recognises the legitimacy of each subject to participate in the dialogue as an autonomous and equal partner

Habermas Condition No 5 :

Equal opportunity for discussion, and the achieved-negotiated-consensus resulting from discussion deriving from the force of the better argument alone, and not from the positional power of the participants

Habermas Condition No 6 :

Exclusion of all motives except for the cooperative search for truth.

The observation process also involved identifying the incidence of transdisciplinary learning in the classrooms, based on the evidence in the literature review, and for this purpose the following conditions were also observed:

1. The lecturer encourages and discusses new knowledge which may emerge from group processes that may not fit with current theoretical models, but which provides an acceptable solution.
2. There is mutual learning between lecturer and students; equalized power dynamics between teacher and taught.
3. Lectures, group discussions, assignments, business projects, case studies are designed to allow for the analysis of complex, real world problems
4. Syndicate groups are structured to be representative of different disciplinary perspectives
5. Students are allowed to generate their own real-world problems
6. Students are given the freedom in group work to come up with new knowledge, that is, outcomes of group processes are not constrained or limited by current knowledge.
7. The transdisciplinary process is explained to students.
8. Guidance is given on how to engage in meaningful "deep" dialogue

The above conditions reflect the main characteristics of transdisciplinary learning, based on the literature review.

A precedent for the use of observation methodology in researching teaching methodologies is evident in a study by Sobat in 2003, where he utilized observation techniques to determine the prevalence of constructivist teaching methodology in the classroom.   The study focused on fine arts students at the College of Fine Arts, Ball State University. (Sobat, 2003).   Sobat identified indicators of constructive learning methodology on the basis of secondary research.

3.7.2   Interviews

Darlington and Scott (2002, p.75) allude to the value of interviews in supplementing data obtained from observations in that they allow the researcher to probe beyond "observable social phenomena".   The combination of interviews and observations in this research is a form of triangulation of data that will enhance the validity thereof.

In-depth interviewing, characteristic of qualitative research was utilized in this research. This kind of interviewing results in rich data as the researcher explores the context, the interviewees' perceptions and experiences, within the natural setting (Rubin and Rubin, 2005).   The researcher chose subjects that were knowledgeable around the topic of MBA teaching and listened carefully to their responses to the questions.   This was followed up by additional questions which probed relevant areas.   Rubin and Rubin (2005, p.vii) refer to this approach as "responsive interviewing".   The interviews were semi-structured and utilized questions which focused the discussions on the lecturers' and deans' views of specific aspects of the research question.   According to Rubin and Rubin (2005) the qualitative researcher uses the interview to structure a discussion around the research interest.   The research "elicits depth and detail about the research topic by following up on answers given by the interviewee during the discussion", (Rubin and Rubin, 2005, p.4).   An example of the interview questions for the lecturers and the deans are contained in Annexures A and B respectively.

All interviews were recorded and then transcribed into hard copy.   All interviews were tape-recorded verbatim, with the written permission of the interviewees.   Transcriptions of these interviews quoted in the text, reflect the verbatim nature and the informal, unstructured flow of

the discussion.   The verbatim text was not corrected for grammatical errors.   It is believed that to do this would have altered the flow and the nature of the thinking of the lecturer and the message they were trying to convey.

The open-ended questions posed to the lecturers are tabled below in Table 3.1, together with the additional issues that arose from the interviewing process, in Table 3.2.   The questions were designed by the researcher to elicit information relevant to the research questions.   They centered around the notion of transdisciplinarity in order to assist the researcher to determine whether there was in fact evidence of this learning methodology in the MBA lecturers' prevailing andragogy.   The interviews were conducted after the class observations and were approximately one hour in length.   The sequencing of the data collection was done in this way because the researcher did not want to expose the lecturers to the objectives of the research prior to the class observations.   This was to avoid the lecturers either consciously or unconsciously changing their approach to suit the needs of the researcher.   It is accepted that in spite of these precautions, it is possible that some degree of behavior modification may have taken place. The mere presence of a researcher in the classroom may have had this effect.

The deans of the schools were interviewed with the objective of understanding the strategy, philosophy and value system of the business school.   The interview question posed to the deans is tabled below in Table 3.3.   The question to the dean was very broad and was intended to illicit spontaneous information relating to the broad guiding principles which govern the management of the school.

The table below lists the questions that were asked of the lecturers during the interviews :

Question No	Question
1	Are you familiar with the concept of interdisciplinary learning, or interdisciplinary problem solving *Researcher's Note : Question 1 and 2 were asked because the concept of interdisciplinary learning is quite widely understood, however, the concept of transdisciplinary learning is not as well known.*
2	Are you aware of the concept of transdisciplinarity and how it is distinguished

	from multi/cross/interdisciplinary learning?
3	Do you have any concerns about the way we teach/educate/develop leaders in our MBA programmes today. If so, what are these? *Researcher's Note : This question was designed to expose the researcher to the existence of concerns around the nature of leadership development in MBA classrooms*
4	What assumptions do you make about the students and the challenges that they will face as leaders in the 21st Century? *Researcher's Note : The researcher wanted to know whether lecturers had given any thought to the postmodern challenges that their students would face as emerging leaders and whether they had incorporated these into their teaching curriculum. A second motive was to learn from the lecturers and to confirm the researcher's understanding of postmodern leadership challenges gleaned from the reading she had undertaken.*
5	Have you tried new approaches in the classroom. If so, what and why? Did they have the effects/outcomes you desired? *Researcher's Note : This question was linked to question 3 above. The purpose of the question was twofold, firstly to see if there were synergies between the concerns raised in the answers to question 3 and the changes in teaching methodologies lecturers had applied in the classroom. Secondly, it also allowed the researcher to categorize, where possible, which theoretical paradigm/s, in terms of learning methodology, the lecturers were applying in the classroom*
6	To what extent do you engage with other academics in the development of the MBA program? In the development of the courses you teach? What is the nature of that interaction? Can you give me an example? *Researcher's Note : This question was posed in order to establish the level of interdisciplinary interaction amongst the lecturers that might support more integration of disciplines that is characteristic of transdisciplinary learning.*
7	Do you think that the concept of "transdisciplinarity" has value to add in terms of a learning methodology for leadership development in a postmodern world –

	i.e. a complex, paradoxical, unpredictable and ambiguous world?
	Researcher's Note : Clearly here the researcher was looking for support for her own perspective, i.e. that transdisciplinary learning would in fact support a more effective learning process for leaders who would operate in the postmodern context.
8	Universities, and more specifically in this research, Business Schools, can be seen as "social agents" in that they determine who gets access to leadership development and what kind of experience they will be exposed to. The underlying values espoused in the curriculum, the teachers and the culture of the school will undoubtedly influence the students' mindset, and perhaps even engender philosophical conflicts. Can you comment on this statement?
	Researcher's Note : In the responses to this question the researcher was searching for clues that would unveil the value system within the school so that she could expose synergies between that value system and the values inherent in transdisciplinary learning. Clearly a strong capitalistic paradigm in a school that focuses on revenue generation would not have synergies with the socially based theories of social constructivism and critical pedagogy, which, as was indicated in the literature, have strong parallels with transdisciplinarity

Table 3.1 : Lecturers' Interview Questions

The researcher took the liberty of addressing certain issues depending on the expertise of the lecturer being interviewed, or the when subject under discussion warranted this.   These issues arose as a result of the reflection of the researcher on the content of the interviews as they took place and as a result of points raised by the lecturers themselves.   These are the additional issues that were raised when the context was appropriate.

Issue No	Issue
1	Capitalism, with its focus on increasing returns and individual wealth creation, is at the heart of the failure of the postmodern economy; and a related issue that business schools uphold and sustain the capitalistic notion of economics
	Researcher's note: The paradigms of transdisciplinarity and capitalism are antithetical. Thus the researcher was interested in the degree to which the

	capitalistic paradigm is entrenched in business schools.
2	The global credit crisis of 2008/2009 can be attributed to the failure of neo-classical linear economic models. *Researcher's note: This issue is related to the first one in that neo-classical economics is syngeristic with the capitalist paradigm.*
3	Do we develop leaders in MBA programs? Are leaders born or made? *Researcher's note: This question arose as a result of a number of lecturers, during the interviews, questioning whether the MBA actually developed leaders or whether leaders could be developed at all. This issue surprised the researcher given that business schools were spawned out of behavioural leadership theory that assumes that leadership can be taught. It seems ironic that a lecturer at a business school would not know the answer to this.*
4	The restrictions placed on the curriculum content by the requirements of accreditation bodies. *Researcher's Note : This issue is of interest to the extent that accreditation requirements may prevent the transformation of curriculum to include a transdisciplinary component*

Table 3.2 Additional Issues Raised in the Interviews

The following open-ended question was posed to the Deans :

"Please can you elaborate on how the management structures of the business school, support the learning paradigm, mission, vision and values of the school".

This question was designed to elicit information about the value systems inherent in the business schools visited and to draw some conclusions regarding whether prevailing economic paradigms were supported by the schools.

3.7.3   Content Analysis Curriculum Documentation

Curriculum documentation provided by some of the lecturers was sourced and analyzed in order to ascertain the type of learning methodology the class exercises and student guidelines

supported.   The curriculum documentation provided by the lecturers was used to the extent that it supported a particular learning methodology.   The latter may have been revealed in the content of the module, any practical learning experiences such as case studies or exercises and also in the nature of the assessment methods, that is, what types of assignments and how the summative assessments were done.   Brochures and other marketing materials pertinent to the MBA were also reviewed for program content, philosophy and objectives.   School brochures reflected mainly marketing information but also supported the management vision and mission, which spoke to the values and philosophy of the school.   This information was then used to supplement information given by the deans during the interview process.

3.8   Sample

In terms of traditional semantics, predominantly found in quantitative research, the sample is a purposive sample, in other words, the lecturers were purposely chosen as individuals who could answer the questions that the researcher posed (Leedy and Ormrod, 2005, p.145).   Qualitative researcher Esterburg (2002. p.93) supports this and says that researchers should choose their sample to facilitate the "greatest possible insight" into their topic.   Esterburg argues that random samples are not traditionally the domain of the qualitative researcher.   She also claims that the qualitative researcher tends to emphasize depth rather than breadth and thus the sample size is less important than it is for the quantitative sampler.   This was not a random sample as lecturers were sourced from those who were present at the time that the research visit took place.   The sample was thus a convenience, non-probability sample.   The size of the sample supported the notion of qualitative research in putting the depth of the research before the size of the sample.

The research design is cross-sectional, thus the data was collected globally from business schools in the United States of America, the United Kingdom and South Africa.   Permission to conduct the study was secured at six business schools.   The sample consisted of one school in London (UK) two in Boston, (USA) and three South African schools.   Of the South African schools, one was located in Cape Town and the other two in Johannesburg.   Twenty-nine lecturers were interviewed in total and five deans.   The researcher was only able to interview those lecturers who were present and teaching at the time of the visit, therefore the full cohort of lecturers on the MBA programs were not always available.   Between three and seven lecturers

were interviewed at the various schools. Where the deans themselves were unavailable, the second in command was interviewed. This only happened in one instance. The following table gives details on the characteristics of the sample.

Business School	Lecturer	Topic
Business School A	Lecturer 1	Information Management
United Kingdom	Lecturer 2	Quantitative Methods
	Lecturer 3	Accounting & Financial Reporting
Business School B	Lecturer 1	Information Management
USA	Lecturer 2	Organizational Behaviour
	Lecturer 3	Business Law and Ethics
	Lecturer 4	Operations Management
Business School C	Lecturer 1	Diversity Management
USA	Lecturer 2	Diversity Management
	Lecturer 3	Team Effectiveness
	Lecturer 4	Negotiating Skills
	Lecturer 5	Entrepreneurial Thinking
	Lecturer 6	Global Strategy
Business School D	Lecturer 1	Leadership
South Africa	Lecturer 2	Leadership
	Lecturer 3	Leadership
	Lecturer 4	Marketing Management
	Lecturer 5	Personal Development
	Lecturer 6	Economics for Managers
	Lecturer 7	Decision Analysis
Business School E	Lecturer 1	Management Accounting
South Africa	Lecturer 2	Organizational Design and Development
	Lecturer 3	Information Knowledge Management
	Lecturer 4	Decision Making
	Lecturer 5	Industrial Relations
Business School F	Lecturer 1	Micro Economics
South Africa	Lecturer 2	Human Performance in South Africa
	Lecturer 3	Entrepreneurial Thinking
	Lecturer 4	Creativity and Innovation

Table 3.3 : Table of the Lecturers Interviewed

Table 3.3 indicates the six schools in the sample and the lecturers whose classes were observed and who were subsequently interviewed.

Table 3.4, below, indicates the number and location of the five Deans who were interviewed :

School	Dean Interviewed or Not Interviewed	Comments
Business School A	Interviewed	
Business School B	Interviewed	
Business School C	Interviewed	
Business School D	Interviewed	
Business School E	Interviewed	
Business School F	Not Interviewed	This Dean was on sabbatical and his second in command was one of the lecturers interviewed in their role as lecturer. The researcher did not feel that one subject should have a dual role, i.e. lecturer and dean

Table 3.4: Table of Deans Interviewed

3.9   Procedures

The school in London was visited in October 2008 and the two schools in Boston in November 2008.   The three South African schools were visited in the first half of 2009. The researcher observed, on average about five days of classes at each school.   The length of classes varied depending on the school, but with the average length being around 4 hours for each module. This would be equivalent to about 120 hours of classroom observations.   This calculation allows for the additional week spent at the London school to observe the MBA integration week. The lecturers were not specifically chosen for the subjects they were teaching, the sample was a convenient sample in this sense, in other words, whoever was scheduled to teach at the time the researcher was on campus.   The observations were followed by interviews with all the lecturers involved.   All lecturer interviews were tape recorded with their written permission.   Lecturers were not exposed to the research question prior to the observations or interviews in order mitigate behavior change.   In all instances copies of curriculum were requested and in many

cases this was supplied. The researcher then used this documentation for further analysis and validation of interviews and observations.

Interviews were scheduled with the deans of the schools to ascertain context specific information about each program and business school. Relevant documents were also sourced and analyzed, these were predominantly brochures sourced from the marketing departments in the schools which provided information about course content, but were also a useful source of information about the vision and values of the school.

The researcher kept a reflective journal where ideas and thoughts around various situations encountered during the research period, were recorded and incorporated into the thesis. Conversations with relevant people and issues raised in interviews, not directly relevant to the structured questions, but nevertheless relevant to the research, were recorded in this diary and integrated into the data. Creswell (2009) stresses the importance of qualitative researchers engaging in continual reflection by keeping a diary/journal throughout the study.

3.10 Approach to Data Analysis

3.10.1 Qualitative Analysis

Data analysis in qualitative research is an ongoing process involving continual reflection about the data, asking analytic questions and writing up thoughts and interpretations (Creswell, 2009). It involved an iterative process of moving between thematic/content analysis and description in analyzing the data gathered at each site.

The interviews, in terms of analysis, were treated as each lecturer's experiential narrative. The content were analyzed and coded in accordance with Huberman and Miles (2002, p.226) who suggest the following :

> The challenge is to identify similarities across the moments into an aggregate, a summation. An investigator sits with pages of tape-recorded stories, snips away at the flow of talk to make it fit between the covers of a book, and tries to create sense and dramatic tension. There are decisions about form, ordering, style of

presentation, and how the fragments of lives that have been given in interviews will be housed. The anticipated response to the work inevitably shapes what gets included and excluded. In the end, the analyst creates a metastory about what happened by telling what the interview narratives signify, editing and reshaping what was told, and turning it into a hybrid story……..

One of the intentions of the researcher was to generate a metastory about how leaders are developed in the business schools visited. Categorical data analysis, a popular form of analysis in qualitative research (Lee, 1999), focuses on the key themes or categories relevant to the research question. These were :

1.   The prevalence of transdisciplinary methods of tuition in the MBA classroom.
2.   The level of awareness around the need for methods of tuition that incorporate an interdisciplinary platform.
3.   The prevalence of action learning and experiential learning as favored methods of teaching in the schools in the study.
4.   The prevalence of leadership as a core module in MBA programs.
5.   The prevalence of concerns of academics around the way in which we develop leaders in MBA programs.
6.   The level of awareness in the business schools studied, of a need to transform teaching methodology in leadership development to be compatible with the postmodern context.
7.   The themes emerging around the nature of the postmodern context, in the opinion of the academics.
8.   The degree to which business schools underpin their learning methodology with the principles of capitalism.

All of the above themes or categories provide support for the need for a transdisciplinary andragogy for leadership development in a postmodern context.

The researcher was interested in what the lecturer's thoughts were regarding how leaders should be developed in MBA classrooms, on what type of teaching methodology they believed was the

most appropriate. The researcher sought to discover the synergies between their thinking and they way they teach in class. The key element the researcher was listening for was to identify whether the lecturer felt that they were comfortable with their current approach to teaching or whether they believed that they should change it, and if so, why and how and whether they were already implementing that change. All thought paradigms and notions of transformation were examined for their synergies with transdisciplinary learning.

3.10.2 Content Analysis

Content analysis was the primary means for analyzing the data in this research. Leedy and Ormrod (2005, p.142) describe this type of analysis as "a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes and biases".

Leedy and Ormrod (ibid) suggest that the following is included in a qualitative research report which utilizes content analysis :
Method :

1.   The researcher identifies the specific body of material to be studied.
2.   The researcher identifies the characteristics or qualities to be studied.
3.   The researcher breaks down large, lengthy items into manageable units of analysis
4.   The researcher scrutinizes the material for instances and evidence of characteristics or qualities mentioned in "2".

This research systematically examined the content of interviews, business school marketing documentation and of activities in the MBA classroom, to expose the main themes, patterns and biases inherent in the data. This was done with the particular purpose of evaluating the nature of prevailing leadership development andragogy in relation to the way in which it prepares emerging business leaders for the challenges of the postmodern context, and to determine whether any transdisciplinary learning methodology was evident in the classrooms. Bjorkegren (1989) defines a theme, in the context of this research, as "recurrent topics of discussion". He uses a musical analogy of a recurring melody in a piece of music. The key element of a theme

according to Bjorkegren (ibid) is that it captures the central ideas in a discussion or a series of discussions.   The themes were viewed for their relevance to the research issue, their connection to the theoretical assumptions inherent in transdisciplinary learning and for the support they offered for the researcher's original observations and perceptions about the nature of teaching methodology in MBA classrooms.   The data were not considered extensive enough to require the employment of a coding technique.   The researcher summarized the essence of the interviews and captured this in table format.   The summarization involves identifying those aspects that linked directly to the research issues.   The researcher read the interviews through to get an overall impression.   This was followed by iterative readings in order to identify and extract specific key themes in so far as they supported, or did not support, the research question. This technique is referred to by Kvale (2007, p.106) as "meaning condensation" where "..the main sense of what is said is rephrased in a few words".   Meaning condensation requires five steps. These are :

1)   The complete interview is read
2)   The natural meanings such as they are expressed by the subjects are determined by the researcher.
3)   A natural meaning unit is restated as a thematic component
4)   The natural meaning units are interrogated for the purpose of the study, and
5)   Non-redundant themes are tied together into a descriptive statement.

These were the steps followed in the data analysis in this study.

The overall analysis of the interviews follows the notion of bricolage (Kvale, 2007, p,115) where multiple ad hoc methods and conceptual approaches are applied to the analysis.   It is an eclectic approach which allows the researcher to mix technical discourses and "move freely between different analytical techniques". In this approach Kvale discusses ad hoc tactics for generating meaning in qualitative research, "arranged roughly from the descriptive to the explanatory, and from the concrete to the more conceptual and abstract".   He puts forward some techniques of analysis from Miles and Huberman (1994, p.245-6) and from these the researcher has predominantly utilized the method of "noting patterns, themes, seeing plausibility and

clustering".   This has helped her to synthesize the thoughts and perceptions of the lecturers and deans, into prevailing themes and predominant issues.

The researcher identified the most recurrent themes and identified these as key issues coming from the research.   These key themes were tabulated in order to summarize the outcome of the interviews. Quantitative analysis was used to indicate the frequency of the various themes. Sandelowski (2001) argues that some degree of quantitative process such as counting is integral to the analysis in order to recognize patterns in data and common themes. Dey (1993, p.198) supports this and argues that numerical information can "make patterns emerge with greater clarity".

 Kvale (ibid) states that it is not necessary to allow any systematic method or combination of techniques in analyzing interview data.   In this research the researcher read and re-read the interviews and reflected on them in order to become thoroughly familiar with their content and thus to be able to identify the themes that recurred in the data and also simply to develop a meaningful understanding of the thoughts and challenges the lecturers had discussed in the area of leadership development in a postmodern context.   The symbiotic relationship between the data gathered in the observations and in the interviews allowed the researcher to listen to what the lecturers were saying about their preferences in teaching methodology in the interviews and to note, through observation, whether their thinking was being applied in the classroom.   The researcher has an in-depth understanding of leadership development as a result of her research, her teaching experience and her application of leadership development interventions in the corporate context and her knowledge in this area can therefore be considered to be extensive. Kvale (ibid) suggests that as a researcher's theoretical knowledge becomes more extensive, the need for the application of specific analytical tools becomes less.   The interview questions were informed by theory and by the researcher's sense of the research issues, which were based on her exposure and experience in the field.

The data analysis, in accordance with bricolage, utilized content analysis, categorical data analysis, meaning condensation and noting patterns and themes, seeing plausibility and

clustering. It was therefore an eclectic approach using a variety of analysis techniques to make sense of the data.

3.11 Presentation and Writing Up

Darlington and Scott (2002) say that no research is complete until it is written up. Research needs to be written up and structured in a logical and readable format. This research has created an awareness of the challenges in the development of leaders in MBA classrooms and as such it has a message to carry to those who populate the academic world of business schools around the world. It is a message that would also be of interest to business as they are the clients of the business schools. They place trust and confidence in business schools to produce effective leaders for their organizations. This research also has utility in making a meaningful contribution to the transformation of MBA curricula in a way that supports the development of a type of leader who can cope effectively in a complex, paradoxical, ambiguous and constantly changing postmodern world. This is referred to as an instrumental use. There is also the notion of a conceptual use or enlightenment (Weiss and Bucuvalas, 1980, p .98) in that this research has the potential to influence thinking on the issue of leadership development in the MBA program. In order for the research to achieve these aims, it needs to be reported or communicated in a way that can be embraced by the intended audience.

Cousins and Leithwood (1986) suggest six factors that may influence the utilization of a particular piece of research. These are the quality of the research, the credibility of the researcher, the relevance of the research to the decision-makers, the clarity of the communication of the research, the nature and implications of the findings, and lastly, the timeliness of the research. It is the hope of the researcher that the quality of the research and her credibility will stand firm. It is clear from the six factors discussed above that the degree of acceptance and utilization of the research will depend on the quality of the report, the structure, the clarity of the message, and the manner in which it addresses issues that are important to the audience. The researcher believes that the issue of leadership development in MBA classrooms is one which will concern a wide audience in the academic and business world. Academics who teach in MBA classrooms need to deliver leaders into the external world of business who will impress with their ability to be effective. This will support the sustainability of the business

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schools. Many of the issues raised in this research, as was seen in the literature review, are issues that academics and business people grapple with worldwide.

Given the above, care has been taken in the structuring of this thesis and in showcasing the key findings of the research. In doing this the researcher was careful to showcase not only her own voice, but those of the lecturers. The latter are embedded in Chapter Five where lecturers were quoted discussing their concerns about MBA teaching and learning.   The voice of the management of business schools as represented by the deans, was also included in the discussion of the research results, as the academics alone would not reflect a complete picture of the domain of leadership development in the business schools visited.   The researcher tried to reflect faithfully the contradictions and the competing viewpoints, to draw up a rich tapestry of discourse that reflected multiple perspectives and that did justice to the complexity of the debate. In going about this the report reflects an etic-reflexive approach, which according to Darlington and Scott (2002, p. 161) is a combination approach, combining the etic report of the research findings, but also finding place for the researcher to reflect on her experience of the research process.

To indicate the primary role of the researcher, the active voice has been used throughout the report.   In the discussion of results as per Pratt's (2009, p.860) suggestion "power quotes" are utilized in the analysis of the data.   These are "compelling bits of data" that effectively support the points made in the analysis.   Confidentiality has been protected by not referring to any school or individual in the research process, by name.

The researcher made the decision to structure the data around the key themes that emerged from the research process. This, it was hoped, would draw the reader's attention to the key elements of the research and to the perceptions, responses, approaches and recommendations attached to these key themes, which are inevitably central to leadership development in the MBA classroom. A process of inductive logic was employed that was not intended to develop theory, but it is hoped that the research findings will contribute towards new ways of thinking about leadership development and teaching in the MBA program.

3.12   Credibility, Transferability, Dependability and Confirmability

These terms are qualitative terms that lie parallel to the quantitative notions of validity and reliability. Denzin and Lincoln (2005) support the notions of credibility, transferability, dependability and confirmability as being more appropriate in qualitative research. Klenke (2008) argues that credibility, transferability, dependability and confirmability together comprise the essential elements of trustworthiness and authenticity in qualitative research.

The debate regarding the validation of qualitative data collection and analysis procedures is widespread and there are many unanswered questions. The linear mathematical processes, of the positive scientists are trusted vehicles of analysis and they engender much confidence in the integrity of research findings.   These same linear models are found to be reductionist and simplistic by the qualitative scientists, when attempting to understand the complexity of human nature. These conflicting views about research are strongly tied into the different world views, value systems and paradigms of thought of the different researchers (Patton, 1999).   The creative process required to interrogate qualitative data is often viewed with suspicion. It would appear that much is left to the devices of the individual researcher to ensure that his or her research has some credibility in the eyes of the community of behavioural scientists.   Patton (1999, p.1204) supports this notion by saying that this debate about the integrity of qualitative research results in researchers needing to "make their own peace" with how they are going to tackle a credible research process. It is thought that the differences between the two paradigms of research emanate from very different ways of seeing the world.   The phenomenological and interpretivist paradigms of the qualitative researchers are an anathema to the positive scientists. The arguments about the differences between these two approaches to research are often misleading and over-simplistic. (Rolfe, 2006, p.307). This author goes on to say that "neither the distinction between qualitative and quantitative paradigms nor the coherence and unity of the methodologies within the qualitative paradigm, is as clear cut as we have been led to believe". He goes on to say that the idea of qualitative research as an epistemologically or ontologically coherent paradigm is open to dispute (Rolfe, 2006, p.308).   In support, Lincoln and Guba (1998) claim that the word "qualitative" should be "reserved for a description of data collection methods".   The two paradigms do not reflect a linear antithesis of each other, but they evolve from starkly different foundations.   The pre-occupation with objectivity by the positivist

scientists is rejected by the qualitative theorists. This is reflected in the statement by Powers and Knapp, (1990, p.108), in reference to research methodology called Husserlian phenomenology (Rolfe, 2006, p.307) which appears to be an interpretivist type of methodology but which in fact embraces many positivistic notions about research. Powers and Knapp (ibid) claim that this type of methodology is "consistent with views of what constitutes a scientific approach in the natural and social sciences" and as "a slavish approach to prescribed techniques (which) compromises individuals' imaginative, interpretive styles." Sandelowski (1993, p. 3) argues that reliability is not a construct sympathetic to qualitative research as qualitative research sees reality as multiple and constructed and thus it is not replicable and that any attempt to force reliability results in artificiality. It is true that each school reflected its own unique reality evident in its culture and values. However a common thread and purpose runs through all the schools. This commonality is embedded in teaching standards and accreditation requirements which reflect a common global standard in the application of MBA teaching across the world.

The cross-sectional or global spread of the research will support the generalizability of the research findings. However, a cautionary note is necessary. Gibbs (2007) argues the value of qualitative research lies in the particular description and themes developed in the context of a specific site. At a minimum, the results will speak to the potential of a transdisciplinary andragogy across different countries and contexts. An effort will be made to establish qualitative validity and qualitative reliability.

3.12.1. Trustworthiness

Given the background of the debate between the quantitative and qualitative researchers, new terms had to be found that would correlate with the integrity of data in the context of qualitative research. Thus validity in qualitative research is often referred to as trustworthiness. It means that the researcher checks the accuracy of the findings by employing certain procedures. Rolfe (2006, p. 305) takes this notion further and divides trustworthiness into four components, noting there quantitative counterparts. These are firstly credibility, bearing strong synergies with the positivistic notion of internal validity; secondly, dependability which relates to reliability; transferability which Rolfe states is a type of external validity and lastly, confirmability which is largely an issue of presentation. Based on this analysis the researcher considers that internal

validity would have to do with the integrity of the data analysis, whilst dependability would relate to the replicability of the results of the study. Transferability would relate to the ability to generalize the results outside of the research sample. It is not quite clear what Rolfe refers to as "presentation". It should be noted here that Sandelowski (1993) takes issue with the notion of replicable research results within the paradigm of qualitative research on the basis that the qualitative paradigm is constructivism and there is not replicable. She prefers to refer to validity or trustworthiness when discussing the credibility of qualitative research results. Qualitative reliability indicates that the research approach is consistent across the sample (Creswell, 2009: 190). Lincoln and Guba (1985) referred to trustworthiness as "one dimension of perceived methodological rigour". Several measures were utilized in this study to ensure trustworthiness including careful documentation of procedures used at each school.

3.12.2 Validation by an Independent Analyst

The analysis of observations, interviews and the analysis of curriculum documentation were reviewed by an independent second analyst. This analyst had no interest in the study and its outcomes. The purpose of this second analyst was to ensure inter-rater agreement between the results of the researcher's analysis and the second analyst. The second analyst was a deemed by the researcher to be a credible person who was highly competent to undertake the analysis. He holds a doctorate and is a senior academic in learning and curriculum development at a large South African university. Patton (1999, p. 1195) refers to this type of validity check as "triangulation through multiple analysts" and he says that this process of having two or more researchers independently conducting the data analysis and then comparing results has the benefit of providing a critical check on "selective perception and blind interpretive bias". Lincoln and Guba (1998) refer to this type of validation as a peer debrief, whereby the independent analyst reviews and validates the data and the interpretation of themes. Mays and Pope (1995, p.110) support this method of validation saying that "rigour is achieved if another trained researcher could analyze the same data in the same way and come to essentially the same conclusions".

The second analyst reported as follows :

> I ….. verify that according to my interpretations, Ms Saunders' analysis of her data and her findings are fitting and valid and her interpretation makes sense against the background of her research design and objectives.

It should be noted that Sandelowski (1993) objected to this undisputed transfer of positivistic notions of research across into the qualitative paradigm, saying that if qualitative research assumes, as it does, the constructivist approach then repeatability is not a necessary or sufficient property and that any attempt to entrench reliability becomes an unnatural process at best. She sees this approach as being the direct extrapolation of positivistic science to the interpretivist paradigm and she calls it a "threat" to phenomenological validity. This criticism is supported by Rolfe (2006, p.307) in his discussion on validity, trustworthiness and rigor in qualitative research. Nevertheless, there are merits to using an independent analyst as was done in the present research.

3.12.3 Triangulation

The utilization of triangulation in the collection of data strengthens the credibility of the data and its trustworthiness. This is because triangulation involves the collection of data from a number of different sources, which should then demonstrate some synergies in support of the main themes exposed in the research. It is noted however that Denzin and Lincoln (2005) point out that qualitative research is essentially "multi-method" in nature and that "objective reality can never be captured". (Denzin and Lincoln, 2005, p. 5). They also argue that triangulation adds depth and richness to the data and is not necessarily "a tool of validation but an alternative to validation. Denzin and Lincoln, 2005, p. 5). These authors call for a serious re-thinking of the terms validity, generalizability and reliability, which they believe are firmly placed within the positivistic and quantitative research paradigm.

Patton (1999, p, 1193) discusses four kinds of triangulation of data in qualitative research these are :

1. Checking out the consistency of findings generated by different data collection methods, that is, methods triangulation

2. Examining the consistency of different data sources within the same method, that is, triangulation of sources.

3. Using multiple analysts to review findings, that is analyst triangulation.

4. Using multiple perspectives or theories to interpret the data, that is, theory/perspective triangulation.

This research utilizes two of the above, namely methods triangulation and analyst triangulation.

According to Yin (2003), collecting information from more than a single source should increase the validity of results. In this research, data were collected through researcher observations, lecturer interviews, dean interviews and document review and analysis.

Finally, the researcher kept a journal of impressions and reflections during the research project. This journal was used to note down the researcher's reflections during the research process. This included moments of inspiration in regard to ideas that would add value to the research, informal discussions with people that related to the research and any additional information and thoughts that emerged outside of the formal data collection mechanisms.

Reflectivity has been recommended as a means of researchers' acknowledging their own subjective position in the research process and to clarify any bias brought to the study (Creswell, 2009). This process supports validation for the research results. The researcher has acknowledged her subjective position earlier in this chapter.

3.12.4 Confidentiality

Flick (2009) emphasizes the importance of confidentiality in qualitative research. He notes that the identity of the participants must be kept confidential and that it should not be possible for them to identify their colleagues in the research. He also says that specific details regarding the identity of the participants need to be encrypted to achieve the necessary level of confidentiality. In this research the identifying details of both the schools visited and the lecturers and deans

interviewed were kept confidential by means of a numbering system. Each school was given a letter of the alphabet and lecturer and/or dean was given a number. For example, data were listed under School B, Lecturer 2. All lecturers and deans signed consent forms for their interviews and the class observations. As per Flick's suggestion all the raw data has been kept under confidential cover by the researcher and not shared with any other person. All information regarding the participants was kept in the researcher's office and never taken to the research sites to ensure that no-one would be accidentally exposed to this kind of information. This safeguard is recommended by Esterburg (2002). Apart from protecting the identity of the participants certain information was kept confidential by the researcher in order to protect the integrity of the data. In this instance lecturers, were always interviewed after the class observations had taken place. This was to prevent lecturers from changing their approach to teaching in any way as a result of being exposed to the research question. The lecturers were only informed of the nature of the research at the interview after their classes had been observed.

3.12.5 Credibility of the Researcher

In discussing the quality and credibility of qualitative research Patton (1999, p.1205) says that the credibility of the researcher is often a key element of the trustworthiness of the data. This relates to the professional integrity and intellectual rigor of the researcher. There are clearly no clear cut rules but reliance is placed on the meticulousness of the researcher in undertaking iterations of data examination and analysis. Patton (ibid) refers to "creativity, intellectual rigor, perseverance and insight" as being the bedfellows of credible qualitative research. In this regard the researcher has applied iterative reviews of the data, going through the interviews over and over in order to ensure that a valid process of analysis was undertaken. She has continuously returned to the data to review key areas and to ensure that valid trends and themes were exposed.

These positive aspects of the researcher need to be seen against the limitations of her subjective position in the research. It is acknowledged that the researcher viewed all data collected through her own personal lens and all information was filtered through her own perceptions which favour an emancipatory approach to learning within the critical pedagogy and social-constructivist paradigm. Things conforming to those notions are there likely to have been

treated favourably whilst those opposing may have been viewed negatively. The fact that the researcher is an academic who teaches on MBA programs in South Africa, causes her to have very strong synergies with the sample. Normal egotistical defences inherent in her interactions with the sample could easily have influenced her interpretation. The researcher attempted to limit her subjective influence in interpreting the data collected by aligning the data with theoretical paradigms. For example she may say : "this particular behavior of process in the classroom has strong synergies with action learning"; which could then be corroborated by reference to extant theory. The collection of data from multiple methods of inquiry allowed the researcher to further check her interpretations against those multiple sources. For instance, if the researcher recorded during the class observations that the lecturer had a preference for using case studies in their teaching, this could be substantiated in the interview and also supported in the curriculum documentation. Darlington and Scott (2002) indicate that this is one of the ways in which the subjective interpretations of the researcher are mitigated.

3.13   Limitations to the Research

Limitations due to funding resulted in only six schools being sampled, three in South Africa, one in the United Kingdom and two in the United States of America. It is acknowledged that a broader sample of schools may have rendered more depth in the data and thus more interesting results. The notion of transdisciplinarity was focussed on and clearly distinguished from cross disciplinarity, inter- disciplinarity and multi-disciplinarity. The notion of postmodernism and complexity theory is applicable only, in terms of this research, to the domain of leaders in organizations. The influence of researcher subjectivity on data analysis and discussion is noted as a common limitation in qualitative research and the reader should take this into account when reading the report.

The limitations of the research methodology and in particular the methods of data collection must be acknowledged. Given that the researcher was only exposed to each lecturing style, through class observation, for a period of a few hours, it is quite possible that there is a lot that she missed out on. The interviews were only an hour long on average, and the lecturers and deans were only exposed to the questions at the time of the lecture. Therefore they were not afforded any time to reflect on the questions prior to the interview, and had they been able to, it

is possible that they would have answered differently or more extensively. They may well have had some relevant insights into the research topic, after the interview was completed, which they did not share with the researcher. Patton (1999, p.1197) acknowledges this as a common limitation in qualitative research. The researcher argues however, that this is not ameliorated in quantitative research given the manner in which quantitative researchers are required to reduce the research variables to ensure that they are discrete and measureable. The research contexts of both qualitative and quantitative research therefore produce these kinds of limitations. The attraction of qualitative research, for this researcher, is that it allows the complexity of the context to remain and it becomes the role of the researcher to grapple with this and find meaning within what is deemed, by the researcher, to be a research context that reflects more authenticity that the reductionistic nature of quantitative research.

Patton (1999, p.1197) discusses three types of sampling limitations that arise in qualitative research. These are :

1. Limitations will arise in the situations (critical events or cases) that are sampled for observation (because it is rarely possible to observe all situations).

2. Limitations will result from the time periods during which observations took place, that is, problems of temporal samples.

3. Findings will be limited based on selectivity in the people who were sampled either for observations or interviews, or on selectivity in document samples. This is inherent with purposeful sampling strategies (in contrast to probabilistic sampling).

Limitations 1 and 2 of Patton's limitations apply to this study in that the researcher could only observe those classes that were scheduled during the time she was on campus, and likewise, she could only interview those lecturers who were on campus at the time of her visit, therefore she was unable to observe and interview the entire cohort of teachers and their classes. The latter condition also applies to limitation number three above. Limitations to document sampling were also evident since only some of the lecturers were prepared to provide curriculum information. The researcher believes however, that in spite of these limitations, she was nevertheless able to obtain sufficient credible data about the research topic. The combination of information from interviews, observations and curriculum documentation provided thick data.

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3.14   Conclusion

This chapter has looked at the research methodology employed in this study.   It has also attempted to address all the prevalent debates in qualitative research methodology and to justify the research design with acceptable limits within the qualitative paradigm.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1   Introduction

This chapter presents the information gathered from the data collection process.   The data presented will be discussed and analyzed in Chapter 5.

The following data collection methods were utilized :

1.   Interviews with lecturers and deans

2.   Class Observations

3.   Curriculum Documentation

Of the above five data collection methodologies the interviews with the lecturers and deans yielded the core of the useful information.   Class observations, designed to determine whether any transdisciplinary learning methodologies existed, supported the researcher's original thinking, that is that the predominant methods of learning and teaching were discipline-based and not transdisciplinary.   The curriculum documentation provided, supported the researcher's classification of the learning methodology observed in the MBA classrooms.

4.2   Interviews

4.2.1   Lecturer Interviews

Tables have been used to display the data collected in the interviews.   Each question is treated separately.   The tables contain a summarized version of the answers to each question.   Where relevant, the key themes emerging from each question are tabled below the summarized answers to the questions.

4.2.2. Deans' Interview

The deans were asked one question which related to the management of the schools.

The data collected was varied and is presented in Table 4.15 below.

The researcher reduced all interview data to a more manageable format by summarizing the key elements of the interviews. This summarization process focused on drawing out of the interview data, those areas which linked directly to the research issues. The tables below reflect the reduced data and what the researcher deemed to be the most important information for the purpose of the research. The researcher followed an iterative process of reading and re-reading the data in order to establish the key themes. The data is organized question by question, addressing firstly the lecturer interviews, Questions 1 – 7. Question 8 in the lecturer interviews was a very broad question and elicited a broad range of responses and this was dealt with separately after the data relating to the first seven questions had been recorded. Lastly the data from the deans' interview is tabled in Section 4.4 and Table 4.15.

4.3 Responses to Lecturer Interviews

Question No 1

Are you familiar with the concept of interdisciplinary learning, or interdisciplinary problem solving?

Lecturer	School	Summarized response
Lecturer 1	School A	Yes – respondent provides a good explanation of the term
Lecturer 2	School A	No
Lecturer 3	School A	No
Lecturer 1	School B	Yes – respondent provides a good explanation of the term
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	No
Lecturers 1 & 2	School C	Yes – respondent provides a good explanation of the term
Lecturer 3	School C	Yes – respondent provides a good explanation of the term
Lecturer 4	School C	Yes – respondent provides a good explanation of the term
Lecturer 5	School C	Yes – respondent provides a good explanation of the term
Lecturer 6	School C	Yes – respondent provides a good explanation of the term

Lecturer 1	School D	Yes- gives an explanation using different terms but synergistic with interdisciplinarity
Lecturer 2	School D	Yes – respondent provides a good explanation of the term
Lecturer 3	School D	Yes – respondent provides a good explanation of the term
Lecturer 4	School D	Yes – it is very important ….we have redesigned out MBA to incorporate this
Lecturer 5	School D	Definitely…I did an interdisciplinary doctorate
Lecturer 6	School D	Yes, I am part of the Institute of Futures Research which is based on a transdisciplinary worldview
Lecturer 7	School D	Yes we use it to a large extent on our MBA
		Experimented with interdisciplinary syndicate groups in the MBA this year
Lecturer 1	School E	I have not studied it but it is something I try to bring into play when teaching
Lecturer 2	School E	Yes.. explains interdisciplinary work in field of HIV/Aids
Lecturer 3	School E	Yes…due to my experience in project work but not on the MBA
Lecturer 4	School E	No
Lecturer 5	School E	No
Lecturer 1	School F	No
Lecturer 2	School F	Yes and shows some understanding, but not the "how to"
Lecturer 3	School F	Yes I am. My topic is entrepreneurship and by nature it is a multi disciplinary field
Lecturer 4	School F	Yes, I don't think it is possible to work in the world today without working in a multi-disciplinary mode

Table 4.1 Consolidation of Responses to Interview Question No 1

The data shows that most of the lecturers interviewed (78%) were familiar with the concept of interdisciplinary learning.   However, as shall be seen in Question 2, very few of these had any knowledge of the concept of transdisciplinary learning.

Interview Results

Question No 2

Are you aware of the concept of trandisciplinarity and how it is distinguished from multi/cross/interdisciplinarity?

Lecturer	School	Summarized Response
Lecturer 1	School A	Yes, but definition is flawed
Lecturer 2	School A	No
Lecturer 3	School A	No, talks about diversity
Lecturer 1	School B	No
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	No
Lecturers 1 & 2	School C	No
Lecturer 3	School C	No – this respondent did however have some understanding of Td
Lecturer 4	School C	No – but he gives a good guess
Lecturer 5	School C	No
Lecturer 6	School C	No
Lecturer 1	School D	No – but discussed issues that are relevant to Transdisciplinarity
Lecturer 2	School D	No
Lecturer 3	School D	A clear understanding of transdisciplinarity including the knowledge generation element
Lecturer 4	School D	No
Lecturer 5	School D	No

Lecturer 6	School D	Yes….gives an informed explanation
Lecturer 7	School D	No – discusses an interdisciplinary approach
Lecturer 1	School E	No
Lecturer 2	School E	I have come across it but would need a refresher
Lecturer 3	School E	No
Lecturer 4	School E	No
Lecturer 5	School E	No
Lecturer 1	School F	No
Lecturer 2	School F	No
Lecturer 3	School F	No
Lecturer 4	School F	No

Table 4.2 Consolidation of responses to Interview Question No 2

Although many lecturers were familiar with interdisciplinary learning, only 8% of the sample had had exposure to transdisciplinary learning.   This was only after the researcher carefully explained the difference between the two concepts.

Interview Results

Question No 3

Do you have any concerns about the way we teach/educate/develop leaders in our MBA programs today.   If so, what are these?

Lecturer	School	Summarized Response
Lecturer 1	School A	We need to link the disciplines
Lecturer 2	School A	There is a lack of critical thinking
Lecturer 3	School A	We need to link the disciplines
Lecturer 1	School B	Not really, I have it down
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview

Lecturer 4	School B	We need to link the disciplines
Lecturers 1 & 2	School C	Yes – we get too much into the technology and we forget that we are developing an individual person and also a person who will have a moral impact on society. We forget that we need to empower our students to impact positively on society
Lecturer 3	School C	Yes – We focus too much on skills and results forgetting that we are actually shaping human beings who will operate in the business world. We don't teach the idea of a leader who is also a steward, of a company, or the people who work for them, of their society, people who will question the moral integrity of business decisions, that it is not all about self interest and making money
Lecturer 4	School C	Yes – we prepare students academically for careers in business. We need something like the medical model which includes internships where students can go out and be in the real world
Lecturer 5	School C	Yes – I don't think we develop selfless leaders. We are starting to look at ethics and that's important but we need to focus on the "selfless" side of things. We don't do anything that pushes people to think outside the box…. We don't encourage, support critical thinking. I think we punish far out thinking. I think it's going to take being able to deal with really strange sounding stuff, something that doesn't fit…it challenges preconceived notions if we are going to solve tomorrows problems.
Lecturer 6	School C	Yes – lots of concerns. Goes on to elaborate on how we don't really develop leaders but the MBA is a good investment for any business person.
Lecturer 1	School D	Universities need to live the interconnectedness of the world
Lecturer 2	School D	I think we aware of the need to change and we are doing so
Lecturer 3	School D	Increasingly…You cannot teach some-one to run marathons if your teaching methodology is about lifting weights
Lecturer 4	School D	No, not now after the redesign of the MBA….that has taken care

		of most of my concerns.
Lecturer 5	School D	No burning concerns….possibly still too silo'd
Lecturer 6	School D	Insufficient time for what we have to teach Lack of integration across disciplines
Lecturer 7	School D	Yes. The old mindset of learning, students waiting to be taught. We don't change the mindsets of the students. Classes should not be used to impart knowledge…this can be done through reading. Classes should enrich knowledge through reflection, dialogue, exposing different viewpoints, getting the students own feelings about how they would respond in a certain context. How do we change people's value systems?…it's an important part of doing MBA education. We need socially responsible leaders, good ethics, sustainability
Lecturer 1	School E	We do things according to the expectations of the students How to apply theoretical knowledge to the real world No time to go deeply into issues
Lecturer 2	School E	We don't have critical thinking Sometimes we are led by what students want not what we should be teaching them. This comes from a marketing thrust. Students shouldn't be dictating to us
Lecturer 3	School E	Problems with assessment processes We seem to be developing students for careers inside a business rather than being entrepreneurial and risk taking We are still very guilty of teaching in silos Limited time
Lecturer 4	School E	Significant concerns Teaching skills as opposed to developing holistic executives Complex issues like HIV/Aids cannot be dealt with in silos Resistance from students to a more holistic approach
Lecturer 5	School E	Efficacy of the syndicate groups. They are not properly used. Too much content packed in

		Too content orientated
		Negotiation skills should be a core subject
Lecturer 1	School F	The idea of putting them under huge pressure and cramming massive volumes of information into their heads
		We don't spend enough time with them
		The quality of students we get to educate is mortifying
		Accreditation constrains innovation in the curriculum, it forces me to teach neo-classical economics which is inappropriate in a postmodern context
Lecturer 2	School F	A trade-off between classroom time and student exploration, student input and shared insights; between teaching and facilitation; between disciplinary expertise and general management theory. Positivism and capitalism are good for business but not good for critical thinking. We are probably set up for silo'd thinking. The question of to what extent one provides academic depth and critique/questioning against functional management expertise
Lecturer 3	School F	None at the moment
Lecturer 4	School F	It is very silo'd, there are few integrative subjects
		Almost everything we do is reductive, it is backward looking
		I think there is a lot of analytical thinking as opposed to critical thinking. Critical thinking helps the mind ask the right questions, analytical techniques help you answer it.
		It is very hard to change curriculum at universities

Table 4.3 Consolidation of responses to Interview Question No 3

The following key themes were identified in the data collection from Question 3.

Theme No	Description of Theme	Frequency
1	A need to link the disciplines	35%

2	Lack of Critical Thinking	23%
3	The Leader as a Social Steward	15%
4	Skills training as opposed to leadership development	23%
5	Time with students too limited (Only South African Schools)	12%
6	Accreditation as getting in the way of innovation in teaching	2%

Table 4.4 A summary of the key themes in Question No 3

Interview Results

Question No 4

What assumptions do we make about the students and the challenges they will face as leaders in the 21st Century

Lecturer	School	Summarized Response
Lecturer 1	School A	The lecturer did not answer this question. It was omitted at the time of the interview. An effort was made to obtain an answer by email but this was not successful.
Lecturer 2	School A	The lecturer did not answer this question. It was omitted at the time of the interview. An effort was made to obtain an answer by email but this was not successful.
Lecturer 3	School A	There is a need to be responsive to change They will have to be adaptable Problems with no obvious solutions Good interpersonal skills will be important Cultural Diversity

Lecturer 1	School B	Competition
		Complexity
		Messy problems with no obvious solutions
		Global Economy
		Cultural Diversity
		Outsourcing
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	There will be insufficient data for problem solving
Lecturers 1 & 2	School C	Need to learn how to work with differences
		They should be empowered to voice their values and to act on their values
		To question authority and push against it
Lecturer 3	School C	The need to be flexible, an adaptive quality
		A hunger for knowledge
		Comfortable with a lack of predictability
		Able to cope in permanent white water
Lecturer 4	School C	Students need to be flexible
		Understand that their careers may be short in a particular company and they must always be ready to move
		They will have to deal with diversity
Lecturer 5	School C	I think it's going to take being able to deal with really strange sounding stuff, something that doesn't fit…it challenges preconceived notions if we are going to solve tomorrows problems.

Lecturer 6	School C	More markets for them to sell their goods and services
		Increased competition from all parts of the world.
		Their organizations will have to earn their survival everyday
		Continuous innovation to stay ahead of the pack
		Short windows of competitive advantage
Lecturer 1	School D	Brings up issues of environmental sustainability, green issues, poverty, starvation, …a need to re-create the planet
		Leaders need to learn to lead without hanging onto the rank the position gives them
		Create a new future
Lecturer 2	School D	Things are going to be more flexible, quicker and faster, people who are rigid in their approach will find it very difficult
		Bigger openness and preparedness for change
		Talent management will be extremely challenging, because of increased mobility and reduced loyalty
		Leaders will have to focus on sustainability, not just the organization but the country and the world ….the green thing is going to be very important
		Moving away from a preoccupation with money and greed and asking how a leader can make a contribution to society
Lecturer 3	School D	We have gone from a semi-skilled workforce to a knowledge based workforce
		Dichotomy between the way organizations are run in a centrist, hierarchical manner and the demands of society which is essentially democratized
		The growing influence of business on society
		A wealth of information and data and the demise of the hero leader
		The need for government and business to interact

Lecturer 4	School D	From marking perspective consumers are much more informed and critical.
		Autocratic leadership will not work….there is a need to be inclusive, co-creators, joint decision making
		The fast will eat the slow….importance of quick responses
		The ability to cope with cultural issues
Lecturer 5	School D	Diversity
Lecturer 6	School D	Much more complexity
		Diversity on a global level
		Dealing with the softer issues like the people things
Lecturer 7	School D	The increasing complexity of business mostly because of international trade
		Working with different cultures and different ethics
		There is a vacuum in the 40-50 age group so there is no-one to fill the places of retirees. Thus young leaders will be catapulted into very senior positions without sufficient experience
Lecturer 1	School E	Communication is key
		Teamwork
		Be comfortable with failure
Lecturer 2	School E	Complexity around the organization's financial success and sustainability
		Significant competitive pressures
		New technology
		Challenges around ethics and values
		Change and transformation issues
Lecturer 3	School E	The constantness of change
		The focus on one way of thinking
		The idea that you can reduce something to a set of specifications or instructions does capture the full extent of the problem….it is

		wrong
Lecturer 4	School E	Major uncertainty
Lecturer 5	School E	How to distill all the information that is thrown at them
		Working in a complex, diverse society
		Maintaining competitive advantage
Lecturer 1	School F	Linear, neo-classical economic models will not be appropriate
Lecturer 2	School F	Change will increase
		There will be more uncertainty
		More globalization in terms of communication getting quicker and closer
		Competition will get stronger
		More whitewater stuff
		It's a time of social change, dislocation; social sustainability is a major issue for leadership
		There will be more challenges and more opportunities for leaders
		Social, CSI and environmental impact responsibilities will be prominent
		Ethics and accountability for the impact we make will be a key issue
Lecturer 3	School F	Diversity
		Challenges will be complex and unique
Lecturer 4	School F	We are training them for jobs that don't exist
		The students will have to cope with huge change
		Some of the theories we teach will be wrong when they return to their workplace

Table 4.5 Consolidation of responses to Interview Question No 4

The following key themes were identified in the data collection from Question 4.

Theme No	Description of Theme	Frequency
1	Continuous change and complexity	50%
2	Increased competition	19%
3	The presence of high levels of ambiguity	19%
4	The need to be flexible and adaptable	19%
5	The need to cope with high levels of diversity in the workforce	35%
6	Autocratic leadership and rigid structures as inappropriate	23%
7	A knowledge based society	7%
8	The inappropriateness in rational, linear decision making models	12%
10	Stewardship : a concern for positively impacting society and the environment	30%

Table 4.6 Summary of the key themes in Question No 4

Interview Results

Question No 5

Have you tried new approaches in the classroom?   If so, what and why? Did they have the effects/outcomes you desired?

Lecturer	School	Summarized Response
Lecturer 1	School A	Yes – The integration week that attempts to bring disciplines together….although it's not working as well as it should
Lecturer 2	School A	Not really – some games and case studies
Lecturer 3	School A	Not really

Lecturer 1	School B	Yes – I have introduced games, case studies and group discussions
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	Yes – The Kolb Learning Cycle…we leave out half the cycle and jump straight to abstractions and rules
Lecturers 1 & 2	School C	Yes – Mary Gentiles work on giving voice to values
Lecturer 3	School C	I'm always trying new things. I try new approaches incrementally …I am not good at taking the risk for radical new approaches. This lecturer did not really give details in terms of the new methodologies she applies….a kind of "fly by the seat of my pants approach"…whatever works
Lecturer 4	School C	Yes – I am constantly trying out new approaches. My course is an elective and I therefore have more freedom in terms of my approach. I try new things, keep what works and throw out what doesn't. The course is highly experiential, involving role plays and quizzes. Evaluation is embedded into every exercise which causes the students to take everything very seriously
Lecturer 5	School C	Get students to actually do things (experiential/action learning)
Lecturer 6	School C	Not really…I am very theoretical…I have a system that works. I use a few cases, I like applying history and philosophy in my course. I don't have the patience to draw things out of students so I use mostly a lecture style. I cover a lot of material…interaction takes too much time. A students mind is a bank account and it's my job to make deposits into that bank account.
Lecturer 1	School D	Not just an advocate of information but helping to integrate

Try to help people make a shift out of the comfort zone
Groups – a lot of conversation |

| Lecturer 2 | School D | Constant feedback from the students and response to that feedback is very important in continually growing the program

Reflection on their life experience is important and we have started a program including this. How these experiences affect them as leaders. Students keep learning diaries as part of the reflection process. We have had wonderful feedback from the students about this reflection process.
We create a lot of space for discussion |
|---|---|---|
| Lecturer 3 | School D | Journaling, reflecting, leadership event reviews, peer-based coaching, bringing people into a field of vulnerability about their knowledge.

Being a "guide on the side", rather than a "sage on the stage"
Achieving a balance between adequate input which exposes them to seeing the work environment in a different manner |
| Lecturer 4 | School D | Very intensive dialogue in class

Facilitation not lecturing. Lots of discussion, case studies as a basis to critique, discuss….. |
| Lecturer 5 | School D | Constantly need to engage the students |
| Lecturer 6 | School D | Discussion and debate…there is more than one right answer, I like students to explore that

We are constantly using new things |
| Lecturer 7 | School D | I use a problem driven approach rather than a technical/theoretical approach.

Using teaching techniques that are relevant to the experience of a leader in their day to day environment
Placing a lot of responsibility on the students to apply what they |

		have learned in class.
Lecturer 1	School E	More multiple choice questions in class to check understanding To find cases that really explore the topic
Lecturer 2	School E	Action Learning
Lecturer 3	School E	Videos and movies as case studies Guest lecturers
Lecturer 4	School E	Integration between theory and a more holistic approach, but there is significant resistance from the students Introduction of case studies and field assignments A subtle de-emphasis on theory
Lecturer 5	School E	Refers to the more effective use of syndicate groups
Lecturer 1	School F	I have taken a lot of the rigor out of what I teach, students cannot grasp rigorous mathematical explanations of economics. My syllabus is shorter and I am covering less substance. I have given up on substance and quantity in favour of meaningful interaction with the material.
Lecturer 2	School F	Started a global business school network, a program called Teaching the Practice of Management. The methodology is around case studies but it is broader than this, the discussion is modeled roughly on the Harvard Business School Colloquium on participant centred learning series.
Lecturer 3	School F	Not at the moment

Lecturer 4	School F	I have tried to be more innovative in the way I use case studies…..sometimes use newspaper reports I use a lot of role plays very successfully.

Table 4.7 Consolidation of responses to Interview Question No 5

The following key themes were identified in the data collection from Question 5.

Theme No	Description of Theme	Frequency
1	Integration of disciplines	8%
2	Case Studies	27%
3	Incorporating Reflection	12%
4	Including dialogue and debate	23%
5	Applying an experiential learning methodology	23%
6	Applying an action learning methodology	8%

Table 4.8 Summary of the key themes in Question No 5

The above table suggests that case studies are still very popular and there is evidence that some lecturers are being creative in the way that they are applying case studies. Experiential learning is very popular and the incorporation of dialogue and debate featured as important aspects of teaching.

Interview Results

Question No 6

To what extent do you engage with other academics in the development of the MBA program? In the development of the courses you teach? Can you give me some examples?

Lecturer	School	Summarized Response
Lecturer 1	School A	Barely at all although we try in integration week but this is not that successful
Lecturer 2	School A	No – but this is a serious concern and something I would like to change….for example, we could have cross-functional case studies
Lecturer 3	School A	Yes – when a new course is developed and in integration week
Lecturer 1	School B	I am very open to this and sometimes do so. Would like to do more
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	Not at all
Lecturers 1 & 2	School C	We share a lot around pedagogy…teaching conferences and experiences at AOM, we are a team and we learn from each other,.
Lecturer 3	School C	We develop a new curriculum as a multidisciplinary team….the last one took over a year. We are in and out of each other's offices sharing what worked and what didn't
Lecturer 4	School C	We always get involved in the development of a new curriculum. We have a lot of faculty input, faculty debate and faculty negotiation about what goes into it.
Lecturer 5	School C	I do sometimes….. (sounded like time was a problem)
Lecturer 6	School C	I draw on other disciplines but I don't necessary engage with them. I draw on history, economics, finance, psychology, sociology. I feel I have all the knowledge I need, I don't need to engage with other disciplines.
Lecturer 1	School D	This university is quite stuck in their disciplines but that is changing
Lecturer 2	School D	Yes definitely. Our new MBA curriculum emerged from a totally

		interdisciplinary process. All faculty consulted on all areas of the degree. This was required by management
Lecturer 3	School D	Extensively
Lecturer 4	School D	At this school we want to enhance integration as much as possible Very much- I am passionate about that
Lecturer 5	School D	I engage a lot…we have re-structured the MBA to incorporate this
Lecturer 6	School D	Probably not as much as one should I think we are aware of what each other is doing, through meetings and lecturer interaction
Lecturer 7	School D	It's a total team effort. It cannot be done otherwise
Lecturer 1	School E	Very little
Lecturer 2	School E	I engage with colleagues across disciplines but not necessarily with the other MBA lecturers
Lecturer 3	School E	Not nearly enough
Lecturer 4	School E	Not enough….there isn't enough time
Lecturer 5	School E	I worked with the previous lecturer when I designed the program, but no interaction with current lecturers
Lecturer 1	School F	Quite a lot actually. My colleagues and I have worked together a long time and we make sure our syllabi intertwine and fit in. I set up some contradictions between my course and another lecturer so that the students can have a fight and see that different disciplines do things differently
Lecturer 2	School F	We discuss the curricula from time to time but there is no formal consultation process
Lecturer 3	School F	I consult with other academics in the development of my modules
Lecturer 4	School F	I engage with practitioners more than academics. I would engage

		academics if I needed pedagogical input

Table 4.9 Consolidation of responses to Interview Question No 6

The following key themes were identified in the data collection from Question 6.

Theme No	Description of Theme	Frequency
1	Limited consultation with other academics	38%
2	Limited consultation with other practitioners	4%
3	Minimal (a little but almost none) consultation with other academics	23%
4	No consultation at all. Self development of modules	15%

Table 4.10   A summary of the key themes in Question No 6

As can be seen from the above, there is definitely a trend towards an interdisciplinary approach to developing curriculum.   There was no evidence however, from the classroom observations, that academics are taking interdisciplinary learning into the classroom.

Interview Results

Question No 7

Do you think that the concept of transdisciplinarity has value to add in terms of a learning methodology for leadership development in a postmodern world? If so, why?

Lecturer	School	Summarized Response
Lecturer 1	School A	Of course – it's a precondition
Lecturer 2	School A	Yes but not sure how to go about it
Lecturer 3	School A	I am not really sure
Lecturer 1	School B	Yes
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview

Lecturer 4	School B	Yes but not sure how to go about it
Lecturers 1 & 2	School C	Yes but the challenge is to create the environment to allow it to happen To the extent it allows people to think outside the box, absolutely
Lecturer 3	School C	Yes – the tough part is how you enact it. This lecturer had gone some way to thinking about how this might be done…..
Lecturer 4	School C	Feels his course already contains a large element of transdisciplinarity but in fact it doesn't….it involves a critical thinking process, but the students are not in interdisciplinary groups and they are not building knowledge.
Lecturer 5	School C	Yes…we should do more in this area. The idea of a transdisciplinary leader is a terrific one, especially in terms of encouraging students to think outside the box….it's a must
Lecturer 6	School C	Yes …particularly in terms of generating new knowledge or new problem solving methods that draw on an interdisciplinary approach. Many managers are trained to make decisions, not solve problems. Also in terms of the way it supports radical innovation transdisciplinarity will contribute to the ability to cope in a complex world.
Lecturer 1	School D	Yes – talks about stakeholder collaboration globally, an holistic approach, to resolve radical postmodern problems
Lecturer 2	School D	Yes…..it's about what is value adding and what can work. I personally believe dialogue is extremely important
Lecturer 3	School D	It is an absolute pre-requisite
Lecturer 4	School D	Absolutely…particularly in view of the complexity of business

Lecturer 5	School D	Yes definitely. Need to get away from rigidity, address the complexity of life. It is not about order ….it's the life, the confusion out there that is really the vitality of it.
Lecturer 6	School D	Yes that it the way I have been operating for the last 14 years. Not sure how we would achieve it in a learning methodology
Lecturer 7	School D	Most definitely.
Lecturer 1	School E	Absolutely, yes
Lecturer 2	School E	If properly conceived, implemented and evaluated, yes
Lecturer 3	School E	Yes, but I am just trying to figure out how
Lecturer 4	School E	Yes I do
Lecturer 5	School E	It sounds like it but I am not sure how
Lecturer 1	School F	Oh God, absolutely!
Lecturer 2	School F	In the sense that we are striving against silos and helping people to generate knowledge absolutely. Whether the term itself adds value, I don't know
Lecturer 3	School F	Without a shadow of a doubt
Lecturer 4	School F	Sure it has got value
Researchers Note :		In four of the above responses the lecturers were referring to interdisciplinarity and not transdisciplinarity in their response. This was because of a lack of understanding and exposure to transdisciplinarity, not because they did not support it

Table 4.11 Consolidation of responses to Interview Question No 7

The following key trends were identified in the data collection from Question 7.

Theme No	Description of Theme	Frequency
1	Of this 69%, 31% were unsure of how to go about implementing a transdisciplinary learning methodology in the MBA classroom Of this 69%, 23% saw transdisciplinary learning as an aid to assisting	69%

	students to grapple with complex, postmodern problems	
2	Made the link between transdisciplinary learning and the ability to cope with postmodern challenges	23%
3	Uncertain	8%
4	No it has no contribution to make	0%

Table 4.12   Summary of the main themes in Question 7

It is clear from the above, that the majority of the lecturers interviewed, believe that the incorporation of a transdisciplinary learning methodology in the MBA classroom, will greatly enhance the ability of emerging leaders to grapple with complex postmodern challenges. What is lacking is a methodology, process and structure to support this implementation.   Chapter 6 of this report, makes some suggestions in this regard.

Question 8

Question 8 was a broad question aimed at eliciting information pertaining to the social role of the business school.   Given the changes that inevitably accompany a movement from one social paradigm to the next, that is that would accompany a transition or transformation towards the postmodern era, the researcher wanted to understand to what extent business school practice either facilitated or inhibited transformation.   The question therefore contained elements which relate to the role of the business schools as social agents and questions the value system that upholds the decision making within the school and the influence that the school has on society. The question was deliberately broadly framed, and possibly reflected some ambiguity, in order to stimulate the lecturers' own thought processes and elicit some form of reflection of their part, on the content of the question.   A transdisciplinary learning methodology would need to be couched in an open, value-free space in order to support the inclusion of multidisciplinary viewpoint and to allow for the emergence of new knowledge, untainted by the views and possibly prejudices that might have been entrenched in the learning system for many years.   The extent to which business school espouse, either directly or indirectly, a certain value system, or support a certain economic paradigm, would be seen as counter to the principles of transdisciplinarity.

Interview Results

Question No 8

Universities, and more specifically in this research, business schools, can be seen as social agents in that they determine who gets access to leadership development and what kind of experience they will be exposed to. The underlying values espoused in the curriculum, the teachers personal perspectives and the culture of the school will undoubtedly influence the students' mindset, and perhaps even engender philosophical conflicts. Can you comment on this statement?

Lecturer	School	Summarized Response
Lecturer 1	School A	We charge phenomenally high fees as an efficient way of excluding people. We are setting ourselves up to go up the rankings so we are eliminating students. We consciously decided to reduce the student numbers to a third to get quality and our world ranking so it's all based on exclusion.
Lecturer 2	School A	The MBA is about the acquisition of skills. It is not a transforming process. The MBA intake processes and its content appear to feed into a class system in society. This is not necessarily limited to a country as MBA's around the world now are significantly diverse in terms of the student population
Lecturer 3	School A	We are very profit driven. We take the good students because they drive the profits. Disadvantaged students in the classroom would detract from the quality of the degree and negatively influence profitability. Our fees are high, we want to be seen as being in the upper bracket
Lecturer 1	School B	We have a softer touch here than the big expensive business schools, we give grants to students who have difficulty in paying. Within our education system though we are consciously or unconsciously teaching certain value systems, or a certain business philosophy. We teach the people to be

		competitive, aggressive…. the capitalist system. Although that is looking a bit dicey and unsustainable at the moment. Enron etc has brought about a focus on ethics so I guess we are saying that you can be an aggressive, successful capitalist with a strong ethical component in there somewhere…..? We are stepping back a little from the hyper aggressive competitiveness of the pre Enron/Tyco days…stepping more towards some ethical fibre in our business leaders.
Lecturer 2	School B	Not available for interview
Lecturer 3	School B	Not available for interview
Lecturer 4	School B	How I look at things, that is from a socialist or a capitalist perspective, will be very hard to filter out from my teaching. If we do this then we are turning out leaders with a certain ideology
Lecturers 1 & 2	School C	Business schools are related to business and to the enterprise of capitalism and they are training people to be a certain way, to aspire to certain things, to see success in a certain way and to focus on certain things and not others and so they absolutely are agents of the society, for training and development. They help to create a privileged class.
Lecturer 3	School C	We are shaping the next several generations. I worry that we are teaching the children of the elite. Because it's elite we probably don't have all the perspectives in the classroom that we need to. If we don't do our jobs well we can have a fairly large negative impact on society. We are teaching an attitude to life and to business. In effect we are teaching the students to be effective change agents in society.
Lecturer 4	School C	My attitude is a lot of education doesn't impact people as much as it should. My philosophy has always been to challenge them and to help them think and grow as individuals in a way that

		they didn't anticipate and even that I didn't anticipate.
Lecturer 5	School C	I think the school has a responsibility to advance society. I think you have a responsibility to teach ethical behavior and morality ….then you will profoundly impact society. We are training the leaders of tomorrow we have got to train leaders who are both technically trained and ethically trained to be moral, ethical people.
Lecturer 6	School C	People who have more experience and higher GMAT scores and who graduate from better schools have access to leadership development. Getting into really exclusive, elite companies is much harder but you can do that by having degrees from better business schools, not that you are a better leader or you know more, but it's just the credentialing system in the US…..it's about pedigree, the school you went to is very important
Lecturer 1	School D	We need to transcend just business, we have to go into society and the universities need to model that. Universities need to reach out, particularly in this country, to people who may not have had the privilege of having an academic background. We need to have the conversations, the social debates about these kinds of issues.
Lecturer 2	School D	I agree and I think that all of us as a faculty in this leadership program have got a huge challenge. The students challenge us, we need to be prepared to receive feedback.
Lecturer 3	School D	The sage on the stage input/exam/pass, engenders the values of an authoritarian top-down expert model, hero leader value system and a capitalist system.
Lecturer 4	School D	Yes we are definitely a social agent…..we use selection tools like the GMAT to exclude certain people. And yes, we do influence mindsets.
Lecturer 5	School D	There is a willingness to give people access and to take a

		chance on borderline cases. I think that we maybe are not enough aware of our philosophical underpinnings… The students should influence us as much as we influence them and I'm not sure that happens
Lecturer 6	School D	It is a valid statement….it suggests elitism doesn't it? Engendering philosophical conflicts is wonderful, I would welcome that….I hope we do confuse them. There is a very real danger that the person standing in front of the classroom can, impose upon the people in front of him or her, a certain set of ideas.
Lecturer 7	School D	The school has a certain culture. The process of exclusion in schools globally does result in elitism. However, in our school we try to be as accessible as possible. Selection is a fallible process…we are to that extent the guardians of who gets exposed to what we do in terms of leadership development, but it is hopefully for the society's good ….we try to ensure that those who can benefit from the learning get the opportunity to come and do that.
Lecturer 1	School E	Definitely if you have lecturers who have very strong views, ways of doing things, ways in which business should be done or leadership….definitely this is going to have an impact on the students, but it should not constrain them. They should be encouraged to research the views of others as well.
Lecturer 2	School E	I find the statement interesting but I don't find it to be a reflection of this school at this time.
Lecturer 3	School E	I think business schools are sort of agents of change in society. The values of the teachers, the culture of the school will have an influence on the students' mindsets.
Lecturer 4	School E	Business schools have to be responsible citizens. What we do here certainly makes us social agents. I think business schools have to be fair in who they give access to their skills and

		education.
Lecturer 5	School E	The high levels of diversity in business school classes around the world set up the potential for students to be exposed to a wide range of value systems. It supports diverse thinking. Influential leaders will engender a serious set of values. The students need to be able to debate these.
Lecturer 1	School F	Free access to business schools is problematic because then we don't get the level of student we need to stimulate debate in the classroom. There is no doubt that the values of the teachers and those inherent in the curriculum will influence the students.
Lecturer 2	School F	A paradox we have to embrace is to what extent we want to socialize students as against liberating them. Through the learning experience we expose them to we do socialize them, it's socialization, it's brainwashing and it's conscious and not a bad thing. Through socialization we should be turning the students into critical thinkers. So ja, we influence them absolutely, and hopefully have them influence each other and influence ourselves.
Lecturer 3	School F	I think business schools are, without a doubt, social agents. The values and principles that underlie the business school will infiltrate through to the students.
Lecturer 4	School F	Ja I think that is right..there is a self selection process, universities pick people who better comply with the norm, now that by definition is wrong because who says there should be a norm. Business schools select people who look more like them, who meet their standards of academia.

Table 4.13.   Main Themes Emerging in Question No 8

Theme No	Description of Theme	Frequency
1	Elitsm	35%
2	The School as a social agent	46%
3	The perpetuation of the capitalist model	15%
4	The influence of the school over student mindsets	31%

Table 4.14   Summary of the Themes in Question No 8

The above four issues are clearly inter-related and are separated here purely for the purpose of analysis.   The issue of elitism is a form of influence over student mindsets however the result does indicate that selection processes may be excluding all but the elite in society, from leadership development opportunities.   There is also evidence that the capitalist paradigm is being perpetuated in these schools and this will have the effect of embedding this way of thinking in business in future generations of leaders.   A significant number of the lecturers felt that the school was a social agent and that the curriculum and the influence of the lecturers would have some degree of determination on prevailing social paradigms.   This could be in a positive way in terms of developing ethical mindsets in the MBA students, or negatively in terms of sustaining traditional paradigms of thought that were unsustainable in the postmodern context.

The purpose of this question, in regard to the research question, was to identify underlying themes of a social nature which a transdisciplinary process may be able to contribute to. Transdisciplinarity may have a contribution to make in terms of facilitating change relating to negative social influences which may be supporting inappropriate paradigms.   Business schools that embrace highly competitive business values and models that are unsustainable in terms of postmodern conditions, will produce leaders who are equally unable to be effective in a changed or changing social paradigm.   These leaders will inhibit the natural evolution of society and business within it.   The transdisciplinary process can, through its methodology of deep dialogue,

assist in breaking down perpetuating unsustainable models and freeing up business school thinking. This will produce more socially relevant and more sustainable learning methodologies, curriculum and accreditation systems.

The results of this question show clear themes around the questions of elitism, the school as a social agent, the capitalistic influence and the influence of school values, either those in the culture of the school or in the individuals who have access to the students, being a significant influence on the students. Five of the lecturers discussed the influence of capitalism, i.e. that the capitalist system was being taught and upheld within the MBA curriculum and learning methodology. Six lecturers talked openly of elitism in their schools and the responses in this instance range from unabashed elitism based on the profit motive, aligned to the capitalist paradigm, to some lecturers who expressed concerns about the central role that this economic model has in the schools. Some noted the unsustainability of the capitalist model and called for the opening up of business schools so that students can be exposed to a diverse range of economic models and paradigms. The major theme however was the role of the school as a social agent and the responsibility that this carried. This refers to the influence that schools have in upholding social paradigms by embracing, teaching and exposing students to their favoured value system. Ten lecturers raised this theme.

The four themes emanating from Question 8, i.e. the notion of elitism, the school as a social agent, the perpetuation of the capitalist model, and the influence of the school over student mindsets are not discrete entities. Elitism promotes a certain social paradigm and whether the school supports elitism or whether it questions this approach, moderates the social influence that it has. Elitism has links to the capitalist system and the schools differ in the degree to which they embrace this economic perspective and how they view their level of social responsibility in allowing for change or at least for broader exposure in this regard. The influence of the school on student mindsets runs through all the themes as the means of either upholding a traditional paradigm and, in so doing, resisting change, or as an agent for transformation and open exposure to new and different ways of doing things.

4.4   Responses to Deans' Interviews

The reason for interviewing the deans of the business schools and for the formulation of a broad, strategic question was to endeavour to discover whether business schools were structured to allow for a transdisciplinary learning methodology.   The question elicited broad responses and many issues troubling business schools emerged.   Some of these issues can be addressed by the inclusion of a transdisciplinary learning methodology as the predominant andragogy in the school.

Deans' Question :

Please can you elaborate on how the management structures of the Business School, will support the learning paradigm, mission, vision and values of the school.

School	Summarized Response
School A	We had just had a new strategic review focusing on three elements. Firstly, an internal recognition of what we do well. In five years time we would like to be one of the top 5 schools in Europe. Secondly we want to recognize the strengths of the school and these are the undergraduate and masters programs that educate young people who want to move into business and finance. The MBA is important to us but it is not the dominating program that it is in some business schools. The third element of the new strategy relates to capitalizing on our location, in the heart of London and the world's leading international financial centre. A lot of our courses look in that direction. We want to create an intellectual hub that involves deep theoretical research but that this is also balanced with the practical concerns of the business population that we serve. The applied work comes from a rigorous foundation…it is well structured research embedded in a research culture, it is just that it is motivated by a real world problem. We would like the school to be a hub where professional bodies, trade bodies, companies, professional service firms….would gravitate towards us for solving their research problems, looking at training, wanting to do joint events. The school does not aim to be an ivory tower, we aim to strike a balance and to be a halfway house between academia and the business world.

	We believe that students should be able to work in groups and across boundaries to solve problems….students must learn to work in groups and to manage the dynamics of working in groups; that is going to be important for them when they leave. No problem outside could ever be solved by one person, they always need more than one human being and it needs interaction. Being focused on banking and insurance, we are inevitably capitalistic in our approach. We do not have a Marxist view however, we have CSR (Corporate Social Responsibility) programs and we have a suite of degrees that are concerned with management in the voluntary sector, with non-governmental organizations and charities which incidentally don't make any money. The students also have an ambassador scheme where they will spend time in local schools and schools in disadvantaged areas and it's pro bono.
School B	The structure is pretty traditional. Faculty feel that they should have more say over how we run the school. We get buy in from the academics but some see this as manipulative. A very contentious issue has been the post annual performance review. This is a process that focuses on tenured faculty who have gone into hibernation on publication. My own view is that it should focus on adequacy in pedagogy. We came out of a crisis about 3 years ago when our accreditation was in question. We have now re-structured with a stronger focus on the academic integrity of undergraduate programs. We encourage individual initiative in faculty in regard to setting up international alliances. We created a global MBA a few years ago as a separate venture from the MBA, this was a disaster. It created division within the faculty. We have since revised the global MBA still holding that as a separate degree with its own branding but educationally it has been folded into the MBA so that it builds on the graduate program core. It has the normal core modules with a global capstone. This is a compulsory entry program which is a very intensive simulation experience. This focuses on really careful introspection on the part of the student and consideration of leadership challenges and how the students interact with these. How explicitly leadership is dealt with I am not sure, it might depend on who is teaching it. The global MBA is really

	largely for foreign students a full time program located here in Boston. We have a part time MBA that is more locally based. We get into other companies through multi-national companies here in Boston. There is a foreign internship for a semester. It's been my feeling that we haven't fully come to grips with what the global mission is or should mean and what do we have to do very specifically to put the resources behind making that more of a reality than an aspiration. In terms of fees we try to price competitively with our immediate competition. Our university has been based on being a school of access….traditionally we have said there should be no obstacle getting a Suffolk University education. Some of our competitors have gone the non-accreditation route. It's a blatant money maker.
School C	We are going through a strategy process which is about defining the enterprise in a way that helps us meet a bigger mission and vision which is to produce managers and leaders capable of improving the lot of our lives in the future. Firms increasingly talk about the social triangle, the firm, the government and civil society and increasingly we have to recognize that the firm is the global engine these days that has huge impact on all three and therefore in business schools like this one we have an enormous responsibility in producing future leaders and managers who understand that triangle and understand the connectedness…that they can't look at any problems in isolation. What we do in our education programs, we have to prepare people for a future that involves taking on knowledge, dealing with diversity and execution and we are concerned with issues relating to complexity and influence. You have to be preparing people for a future where they have to be decision makers and they have to execute those decisions with others in an increasingly diverse environment, so they have to be sensitive to diversity, they have to learn about tolerance. He talks of the diversity in MBA classrooms and refers to the previous European business school he was at where 95% of the students were foreign and only 4% were local. There were 50 nationalities in the classroom. It is not enough to just sort of take one person from each of 5 countries and put them together and say right, you are an international

group and then give them an assignment that they will partition….how do you ensure that they work together, how do you ensure that they integrate across the disciplines to think about business leadership in a more holistic fashion.   So this was something that was in our vision and mission.   Good business schools, when they teach linear models, teach the students and executives about the underlying assumptions of the model so that they can think critically about those models and realize……that they are all wrong, and they are all wrong in the sense that they all simplify a very, very complex world, but that's not even interesting, what's interesting is they are useful and it seems to me good business schools understand that they are only useful if the students appreciate the context within which those models have been developed.   We get hardwired into universal truths, how do we get people to confront their assumptions…this helps you to look at others with more tolerance and to appreciate that their frames of reference are as grounded in their own sensibilities and historical perspective as yours are.   Lots of business schools are at a point where they have become aware of the need to do new things, but we are at the stage where these new modules are bolted on, often as electives whereas they should be an integral part of the core of the MBA.   If you truly believe that the firm and its relationship with the broader society and the environment is the main thing we have to consider for the future, then you have to make it as core as we have historically made accounting, finance and operations management.   For me leadership and ethics are in some ways the central purpose of an MBA.   Our dominant education approach that we have adopted is reductionist as opposed to systems thinking or systemic…..   I am sure a lot of management schools today would argue that they integrate, but the bottom line reality is that I have yet to go to an ACSB Conference and EFMD Conference where we are not talking about the challenge of integration.   If we were genuinely into integrating we wouldn't be having these discussions some 25 years later and we are still faced with that business school/university underlying construct that says, as an academic my career is optimized by pursuing functional specialization, by publishing in the best journals in my field and by not getting excessively distracted by walking across boundaries.   I then, as an instructor, become a role

	model for my students who are not going to become academics, but they are going into a real world where it's all about integration. So I truly believe in integrating exercises and integrating processes but I think they have to be deeply embedded in the education experience and I realize that this is a lot easier to talk about than do when in the final analysis you are relying on faculty good will combined with faculty self interest. (In regard to capitalism)…Jack Welsh says that the most socially responsible thing a firm can do is to win because when you are not winning you are not generating surplus, if you are not generating surplus you can't do anything…
School D	Our business school used to be a local school but we are currently re-positioning it as a school of substance in South Africa, competing on the South African terrain, but even more so that we want to be recognized as an institution of quality internationally. We now have four MBA programs, one still in Afrikaans which is a block release program and a part-time and a full-time program and two block release programs. The university is no longer the major shareholder in the school, it is run by an independent public/private company. 20% of the shares belong to the staff of the business school….every tea girl in this building received some shares in the company when we started it. Our main strategic thrust has been to pursue international accreditation. We have Equus accreditation, and Amba accreditation. This opened international doors for us and at the moment we have 65 international partners, we have an international visiting group of students every second week at the business school. About 50% of our fulltime class, at any given stage, would be from other countries, international students and we have just become very much involved in the international business school field of activities. We have international exchange students and exchange academics, some limited joint research but the greater majority would be the open doors for our students to access European institutions. Strategically because of the political transformation we have had to change our racial profile in terms of the South African reality which we did without any great problems or specific challenges arising and today about 60% of our students enrolled are from previously disadvantaged

communities. We have always said our standards…and we do not set them at the level of Harvard, I mean Harvard accepts students with a GMAT of 700. We will accept a student with a GMAT score of 500. So we are lower than the best international universities but then we are very consistent in that and we do that together with judging other attributes of the students, we want to be sure that when we admit a student to our portfolio that that person has got the capacity to do well in an MBA, and I mean, that is not negotiable and it is much easier today than it was 10 years ago. The political tension is better than when we dealt with the exiles 10-15 years ago. Quantitative subjects are also not as problematic as they used to be for the students. So the situation from our perspective, and I believe in the student perspective as well, is very much normalized, very strong focus on academic, understanding that international accreditation means that if you do not make the grade, the school will not pass you or award a degree because that will bring our accreditation into jeopardy. Whether we admit 250 students in a year or whether we accept 180, is not that important to us. The school will not go under financially if we have to do that. I mean if we start drawing 100 students instead of 180 then it is going to be a different scenario. When asked the students say that they come here because of the international accreditation and the school's reputation. Our accreditation profile helps us attract good students. I don't think that people realize the extent to which international schools perceptions as to what they should be doing have changed over the past 5 years. The question of not merely transmitting knowledge, but creating skills and of passing on values and changing the attitudes of students ….those are not trivial questions. We are being criticized once again that this whole mess in the world we are getting blamed for, (the 2008/2009 credit crisis) which I think is a bit harsh but I think there is quite a bit of substance in all of that and that is that the critique that I think is very valid is that we do not do very well in preparing our students for the risks of the market and the quantitative analysis that we do with them, although very rigorous is out of line with what is happening in the financial markets. We do not understand how complex the world is and how complex it has become. Those low probability, high impact events….we don't expect them but when they happen, they more or

	less turn things on their head. And I think the interconnectedness of the world has exacerbated this. A simple example is the swine flu….something originates in Mexico and suddenly the whole world…..it wasn't like that years ago, so this is new. I don't think we realized before how interconnected banks are and it is like a set of dominoes, if you tip one they all fall. But the positive learning from that is within a week they had the seven major nations in the world together to decide on what to do….I mean, that is unheard of….The G20 represents 20 countries in the world who get together to decide what to do, I think this is remarkable and amazingly they can come to conclusions and to an agreement in one day's time, which was unthinkable. I think that is probably what people talk about when they talk about a global MBA, that it is all about that complexity and it is not about what will the Rand to against the Dollar or the Euro, it is how do we understand this new reality that we are living in.
School E	We encourage the students to study a mile wide and an inch deep. We put students into interdisciplinary groups where we can try and reflect the nature of the real world of work. The topic of integration is widely discussed at this business school. We have a couple of integrative learning or capstone courses, that require the students to draw on a number of different aspects of the business. We also have strategic management as our capstone course and again this pulls in things from the different disciplines. We are bringing in international business, this is another integrating course, it is a compulsory course for next year. So there is a sort of partial attempt to make sure that the students actually utilize those skills from different base subject matter, base content into an integrative situation. I don't think we do it as well as we might. International accreditation is important because it helps attract the best students and good faculty and ultimately with that you have got some international connections so you can start sharing faculty.
Dean	School F	Dean on sabbatical. Unable to secure an interview

Table 4.15   Summary of responses to the question posed to the Deans of the schools.

As noted earlier the purpose of interviewing the deans and the question posed was to elicit information on the broad, strategic philosophies of the school. This information would allow the researcher to comment on whether traditional strategic paradigms within business schools, would or would not support a transdisciplinary learning approach. It would appear that the individual business schools had independent strategic agendas. However some themes relating to the research topic did emerge. Four out of the five deans interviews brought up the topic of integration and interdisciplinary learning, to one degree or another. Many lecturers and deans refer to "integration" when they talk about interdisciplinary processes. Rather than assume that they mean the same thing the researcher checked the meaning of "integration" in the Encarta dictionary. Words and phrases with strong synergies with interdisciplinarity were contained in the definition, some examples are "a combination of parts that work together well" or "the process of becoming an accepted member of a group or community". Clearly then the concept of integration is about crossing boundaries, about breaking down silos and being more inclusive. In this regard the inclusivity relates to the inclusion of different academic disciplines.

The Dean of School C was the most passionate about the integration and interdisciplinary learning methodology and had already tabled a number of programs which would be a platform to integration. For him there is no concept of leadership that does not embrace the need for interdisciplinary integration in response to the complex challenges that leaders have to cope with in the postmodern context. The Dean of School D, makes some reference to integration through his discussion on the interconnectedness and complexity of the world, however he did not really allude to an interdisciplinary approach. However, it was clear in the discussions with the lecturers in this school, that there was a strong interdisciplinary awareness and that an interdisciplinary learning methodology had already been incorporated into their new curriculum.

The next important theme in the interviews was the issue of accreditation. The schools see accreditation as a way of drawing in good students. Ironically the dean of School C, who did not mention accreditation, was the dean most enlightened about interdisciplinary learning methodologies. International accreditation was also seen as a vehicle for attracting foreign students and for increasing diversity in the MBA classroom. This was a significant strategic objective in School D whose vision related to becoming a school of substance in South Africa, Africa and as an international school of quality. The concerns of lecturers were related to the

way in which accreditation requirements constrains the teaching methodologies within the traditional paradigms, discussed earlier in this chapter and again in Chapter 5, should be noted. There appears to be a dichotomy between the concerns of lecturers, which centre around andragogy and benefits for the learner in terms of knowledge acquisition, and the capitalistic motives of the school that make accreditation into a significant issue around revenue generation. Dutton and Dukerich (1991, p.519), in a discussion on organizational adaptation, discuss routine issues that "elicit well-learned responses" (Starbuck, 1983; Starbuck and Milliken, 1988; Weick, 1988) and that these well-learned responses result in "routinized behaviours that are easily available and rewarded in an organization" (Weick, 1979). On the basis of this it could be suggested that the issue of accreditation has become an "unholy" grail that has set business schools on a certain course of action that may not be ideal in terms of much needed transformation of their curricula to align with the tuition needs of developing leaders in a postmodern context. It could also be that transformation is not an issue to them at all so long as the desired revenues are being maintained.

School A's main strategic thrust was the building of an intellectual hub that would provide support to business in dealing with complex real world challenges. Inherent in this thinking is the notion that novel methods of approaching complex postmodern problems are necessary. The school also places a high value on students working in groups and across interdisciplinary boundaries. The dean stated that "no problem outside could ever be solved by one person, they always need more than one human being and it needs interaction". Inherent in the aforegoing is an acknowledgement of the value of interdisciplinary processes as well as the knowledge building component of transdisciplinarity. School B makes little mention of interdisciplinary processes and is in the process of developing a number of different MBA programs, including a global MBA. The notion of the global MBA, in a number of schools, appeared to be the vehicle for the inclusion of diversity in MBA classrooms and this was often seen to represent an opening up of boundaries and the exposure of students to a more open, integrated teaching context.

School E were experimenting with interdisciplinary student groups. However, their belief is that the addition of bolt-on, capstone courses like strategic management can do the work of integrating the disciplines and allowing the students to draw on a number of different aspects of

the business. This methodology falls far short of what transdisciplinary learning would encompass.

The deans of two schools acknowledged that teaching in their schools that prescribed linear models of thinking, were incorrect and out of sync with what was happening in the postmodern context.

To summarize the main themes in the deans' interviews it can be said that despite significant differences in strategic outlook, interdisciplinary learning and integration were high on the agenda of a number of schools with the schools varying in terms of the degree of approach to incorporating integration into the schools and curricula. Many felt that the opening up of boundaries across disciplines was a way to reflect the reality of a postmodern business context, in the MBA classroom. A number of deans referred to the complexity of global business and of the need to change the way leaders are developed, in order to embrace this complexity. Integration was seen as a means to do this. The intellectual hub of School A has the concept of an interdisciplinary, even transdisciplinary philosophy embedded within it as a necessary element to enable the school to assist business to embrace complex postmodern challenges, however the dean did not discuss any kind of emancipator andragogy as part of this strategy.

Also important to a number of schools, was the issue of international accreditation. This, it is believed, brings high quality, international students into the schools, which in turn contributes to diversity in the classroom. International accreditation also appears to attract international funding and has the added advantage of inflating the revenues of schools as more students want to study at an accredited institution. Accreditation is a strong theme in the pursuit of revenue in business schools, it would seem.

As far as the research question is concerned, this trend towards interdisciplinary learning and integration and the acknowledgement by many of the deans that a new approach to leadership development is necessary in order to enable students to cope with complex, postmodern problems, is in essence, the beginning of a move towards transdisciplinary learning. It is clear then that a transdisciplinary learning methodology already has support in the business schools in this study as a means to cope with complexity in the 21st century, although there is little understanding of how to go about developing and applying a transdisciplinary approach.

4.5 Issues Emerging from the Interview Process

The following section collates the data that emanated from additional issues and themes that emerged as the interviewing process progressed. These issues were not addressed as part of the original interview questions, therefore they were not asked of all the lecturers. They are mostly to do with economic issues and therefore mainly the economic lecturers raised and addressed them. The researcher did not want to eliminate the value of the information gained from these questions and so they are listed here in order to supplement the original data. This method is in keeping with Lee's (1999) call for qualitative researchers to gather data from broad sources and to gather as much data as possible.

4.5.1 Capitalism at the Heart of Postmodern Economic Challenges

Issue :

Capitalism, with its focus on increasing returns and individual wealth creation, is at the heart of the failure of the postmodern economy;   and a related issue that business schools uphold and sustain the capitalistic notion of economics

Lecturer	School	Response
Lecturer 3	School A	We are very profit driven. We take the good students because they drive the profits. Disadvantaged students in the classroom would detract from the quality of the degree and negatively influence profitability. Our fees are high, we want to be seen as being in the upper bracket.
Lecturer 1	School B	We teach the students to be competitive, aggressive…..the capitalist system. Although that is looking a bit dicey and unsustainable at the moment.
Lecturers 1 & 2	School C	Business schools are related to business and to the enterprise of capitalism and they are training people to be a certain way, to aspire to certain things, to see success in a certain way….they help to create a privileged society.
Lecturer 5	School C	No capitalism is a good system. However, greed is the dark side of capitalism and it distorts the system. This is where the problem

		lies.
Lecturer 3	School D	The learning methodology in MBA classrooms tends to support the value system of a authoritarian, top-down, expert model which in turn supports an exploitative, capitalistic system.
Lecturer 1	School F	I am forced by the accreditation system to teach neo-classical economics. I am not allowed to include other viewpoints such as Marxian economics.

Table 4.16 : Consolidation of Responses to Lecturer Interviews: Additional emerging issue relating to capitalism at the heart of postmodern challenges

4.5.2   The Global Credit Crisis and the Neo Classical Economic Models

Issue :

In the literature concerning the current global credit crisis, the blame is often put on the failure of linear risk management models, that assume perfect knowledge and are based on questionable assumptions.   Do you agree with this?

Lecturer	School	Response
Lecturer 1	School B	Yes ….in many instances the models have become too complex for people to understand
Lecturer 4	School B	Definitely….the world is not that predictable any more
Lecturer 6	School D	I would agree but only up to a point. It had considerable impact but there are many other factors. The linear approach you speak has almost an obsession with wanting to quantify, what I call a kind of spreadsheet approach which does not take into account, or very rarely takes into account, human behavior.
Researcher's Note	The credit crisis reached its zenith in the middle of the first data collection process, i.e. in October/November 2008. The researcher raised the issue of whether it was an example of a typical, complex, postmodern problem and raised the issue with some of the lecturer's as to whether its emergence was as a result of the failure of traditional risk management models to cope with the complexity of the postmodern world. Not all lecturers dealt with the question

		as the researcher only brought it in after the first stages of data collection It was also only put to the Economics lecturers and others who may have alluded to it during the interview

Table 4.17 Consolidation of responses to additional emerging issue relating to the global economic crisis of 2008/2009

Three economics lecturers contended that the pre-occupation with rational, linear models of decision making, consistent with neo-capitalistic economics, were if not at the heart of, then at least partially responsible for the 2008/2009 global economic crisis.

4.5.3   The Question Relating to the Development of Leaders in MBA Programs

Issue :

Do we develop leaders in MBA programs?   Are leaders born or made?

Lecturer	School	Response
Lecturer 3	School A	Are we developing leaders? Are leaders not born?
Lecturers 1 & 2	School C	I don't know that we do educate leaders…
Lecturer 5	School C	I'm not sure leadership is teachable…there are people who are just born to be leaders. It's somehow tied to the gene pool I think.
Lecturer 6	School C	I'm not sure that you can develop leaders unless they are born with those innate qualities that identify leaders
Lecturer 6	School D	We definitely should be….I think we should yes, otherwise then we might at best, if we are not at least trying to do that, we might just produce lots of people who are jacks of all trades and masters of none and most of that "trade" would be management…the technical stuff.
Lecturer 2	School E	No I don't think this is necessarily an assumption we can make
Lecturer 4	School E	I'm not sure all the students are going to be leaders. Traditionally the MBA has been about upgrading business skills
Researcher's Note	This question came up on quite a few occasions during the interviews. The researcher was under the assumption that MBA students are almost inevitably	

| | | going to take up leadership positions of some sort. I therefore assumed that MBA lecturers would believe that we can train and develop leaders, and that whilst some people are born leaders, we can also develop people into effective leaders.   The researcher was somewhat surprised that this belief exists within the context of a business school. |

Table 4.18 Consolidation of responses to additional emerging issue relating to whether it is possible to develop leaders on the MBA program

Interestingly 5 lecturers out of the total of 26 interviewed, had doubts, to one degree or another that the MBA program was actually a process of developing leaders.   Two of those lecturers actually held the belief, popular in the 1930's, that leaders are born and cannot be developed.

4.5.4.   The Challenges of Accreditation Systems

Issue :

The restrictions placed on curriculum content by the requirements of accreditation bodies which prevent innovation and transformation in MBA content.

Lecturer	School	Response
Lecturer 3	School C	We would love to get into more of a transdisciplinary way, however, our accreditation bodies focus on concrete stuff and measurement. This makes it difficult as the transdisciplinary process can be powerful but the individual learning would be hard to measure in a concrete form.

Lecturer 1	School F	For accreditation for an MBA course in economics, you have to teach neo-classical economics which is this incredible linear, modular type of approach to understanding essentially human behavior, which is neither linear nor does it fit beautifully into a gorgeous equation.
Researcher's Note		This question was not part of the original research methodology. The researcher felt however that it was a significant issue that warranted recording. This question was not put specifically to all lecturers, it is noted here when it arose as an issue during the course of the interview.

Table 4.19   Consolidation of Responses to Lecturer Interviews : Additional Emerging Issue Relating to Accreditation

Although this was not a strong theme, it does appear that some lecturers, particularly those who are passionate about innovation in the MBA teaching process, feel constrained by the rigid requirements of global accreditation systems. The researcher felt this was relevant as this would be a constraint if schools wished to transform their andragogical process to include a more transdisciplinary approach. The role of accreditation and its influence on transformation of curriculum was discussed in the literature review. These concerns support those raised in the secondary research.

4.6   Class Observations

The data collection based on class observation was based on nine conditions relating to a transdisciplinary learning methodology which were taken from the literature on transdisciplinarity. Six further conditions based on Habermas (1979/1981) were also added as a result of the synergies between Habermas and a transdisciplinary approach to learning. The following table illustrates the findings of the class observations. It should be noted here that a lack of data relating to transdisciplinary learning, supports the research question, that is, that lecturers are not taking an emancipatory approach to learning methodology in MBA classrooms, in spite of the fact that they acknowledge that the world has changed. There seems to be a schism between their understanding that the world of leadership has changed radically, and their

approach to teaching in the MBA program, which is reflective of a silo'd, discipline-based approach.

Characteristics of Transdisciplinarity	Number of Observations	What was observed
Empowered learners 1: Teacher encourages and discusses new knowledge which may emerge from group processes that may not fit with current theoretical models, but which provides an acceptable solution	1	The predominant method of teaching was based on exposing students to current knowledge, utilizing extant theoretical paradigms.
Empowered learners 2: Mutual learning between teacher and students; equalized power dynamics between teacher and taught	No observations	There was a clear power differential between the teacher and the taught. The teacher (lecturer) had knowledge based power, in that it was assumed that he or she had all the answers. In the more quantitative subjects the "chalk and talk" approach was common. The use of overhead presentations was also popular across a broad range of subjects. Both these learning methodology place the balance of power in the lecturer.
Learning methodology 1: Lectures, group discussions, assignments, business projects, case studies designed to include analyses from the perspective of	1	Class practical work was predominantly done in syndicate groups where student allocation was not

different disciplines		based on the representation of different disciplines. The allocation principles varied from geographical location, to a laissez faire approach where students could choose their own groups.
Learning methodology 2: Lectures, group discussions, assignments, business projects, case studies designed to allow for the analysis of complex, real-world problems.	22	Lecturers were careful to identify problems for discussion that were topical and which reflected real-world problems.
Structure of groups: Syndicate groups structured to be representative of different disciplinary perspectives	No observations	Syndicate groups were not representative of different disciplines
Complex, real-world problems: Students allowed to generate their own real-world problems.	No observations	In all cases, lecturers were responsible for deciding on the problems that would be debated in the classroom. Lecturers generally chose topical real world problems for the students to discuss, however, there were already extant answers to these problems which they students were expected to arrive at. Students given an opportunity to generate knowledge regarding complex problems to which there were no extant solutions or past precedents
Knowledge Production: Students are given the freedom in group work	No observations	In all instances specific "correct" answers were

to come up with new knowledge, i.e. outcomes of group processes are not constrained or limited by current knowledge.		required by the lecturers. There were no observations of students being freed to come up with their own solutions
Transdisciplinarity process: Transdisciplinarity process is explained to students	No observations	Most lecturers were unaware of what transdisciplinary learning (interview data) is and therefore they would not have been able to explain it to the students.
Meaningful communication : Guidance is given in terms of how to engage in meaningful, deep dialogue.	No observations	There were no observations of lecturers assisting students on how to engage in a meaningful dialogue, in the process of resolving problems.
Habermas Condition for Communicative Action No 1: Freedom to enter a discourse, check questionable claims, evaluate explanation and justification.	11	This type of communication was evident in some of the classes, where students were able to question points of understanding, however, they were expected to accept the explanation of the lecturer as being the correct answer.
Habermas Condition for Communicative Action No 2 : Freedom to modify a given conceptual framework and alter norms;	No observations	At no point was it evident that students were allowed to question, criticize or modify extant theory.
Habermas Condition for Communicative Action No 3 : Mutual understanding between participants	16	To the degree that understanding in students can be observed, there was evidence that there was mutual

		understanding among the students
Habermas Condition for Communicative Action No 4 : Equal opportunity for dialogue that abides by the validity claims of truth, legitimacy, sincerity and comprehensibility, and recognises the legitimacy of each subject to participate in the dialogue as an autonomous and equal partner	10	Certainly students were encouraged to participate in group discussions on an equal basis, however whether the dialogue was valid, sincere and comprehensible was questionable.
Habermas Condition for Communicative Action No 5 : Equal opportunity for discussion, and the achieved-negotiated-consensus resulting from discussion deriving from the force of the better argument alone, and not from the positional power of the participants	1	The "correct" answer or argument put forward by the lecturer was not up for negotiation.
Habermas Condition for Communicative Action No 6 : Exclusion of all motives except for the cooperative search for truth.	No observations	The motive in the classroom was to get the "right" answer, that is, the answer expected by the lecturer. There was no evidence of a "co-operative search for the truth".

Table 4.20   Data collected from class observations

The data show that out of the 9 conditions for transdisciplinary learning, only one, Learning Methodology No 2, was present in the classes observed, to any significant degree.   22 of the 26 lecturers observed incorporated lectures, group discussions, assignments, business projects and case studies designed to allow for the analysis of complex, real-world problems.   Of the six conditions of Habermas (1979/1981), conditions 3 and 4 were fairly well represented in the class rooms.   These relate to the achievement of mutual understanding between participants, and the

provision of equal opportunity for dialogue that abides by the validity claims of truth, legitimacy, sincerity and comprehensibility, and recognizes the legitimacy of each subject to participate in the dialogue as an autonomous and equal partner.

Guest speakers were observed as being popular means of teaching in some of the classes observed. In some cases the lecturers would bring in guest speakers and in others the students were charged with identifying a guest speaker and arranging for them to speak to the class. One lecturer in the leadership module, utilized the peer coaching approach by placing students into triads for discussions. In this context two students perform a role play whilst the third critiques their capability. This is done by the student in the role of coach who refers to a preset model of behavior required by the lecturer and the student evaluates his or her peers performance against that model and provides feedback. The use of the blackboard, or the "chalk and talk" approach was common especially in the more quantitative subjects, as was overhead presentation to the students. Case studies were also utilized by some lecturers although this was by no means the predominant learning methodology applied. In some instances, case studies were based on films which were shown to the students in class. Lecturers using the traditional lecturing style varied in the degree that they elicited participation from the class. The practice of asking students to give presentations, in teams, on a pre-prepared topic was also popular. There were some examples of classic action learning where students, for example, in a negotiating class, had to perform negotiations in a role-play situation. Another example was where students were required to go into a shopping centre and sell articles. To summarize the approach to learning observed in the classroom observations it can be said that it was a combination of action and experimental learning, using exercises and case studies for students to discuss topical issues and thus consolidate their learning. Power differences were definitely in favour of the lecturer. Students were required to learn and regurgitate "correct" answers in assessment situations. Some lecturers showed creativity in designing class exercises but at no point did the learning methodology resemble a transdisciplinary methodology nor did it reveal much synergy with Habermas's conditions which were strongly related to transdisciplinary learning.

It can be said, based on these results, that at the schools in the samples, there is some movement towards a new way of teaching but that it is a long way from being transdisciplinary in any complete sense.

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In observing the MBA classes it was noted that the layout of the classrooms was fairly consistent across schools with most displaying a circular seating formation with the lecturers positioned at the front of the class in the centre, with the horse-shoe shaped seating layout in front of them. The teaching technology was situated in the front of the class and included blackboards, overhead projects and data projectors were the most common equipment. At School A each student had a powerpoint and an internet/wireless connection at the seat. This was not evident in any of the other schools. There was a tangible sense of urgency present in most of the classrooms that related to lecturers concerns about the amount of work that needed to be done in the time available. A number of lecturers expressed a concern that there was insufficient time to cover what was required.

4.7   Curriculum Documentation

There was very little actual course content documentation available for scrutiny. That which was available yielded the following information.

A number of the lecturers interviewed submitted course content documentation indicating the topics covered and the nature of assessment. Not all lecturers provided information on course content.

The following is a table indicating the nature of the course content that was available to the researcher.

Lecturer	School	Content of Curriculum Documentation	Classification of Learning Methodology by the Researcher
Lecturer 2	A	The lecturer was responsible for the module on Quantitative Methods. The course content was based on traditional lecturing and overhead presentations supplemented by case studies which allowed the studies to consolidate their knowledge by	This lecturer used very traditional styles of lecturing which were supported by experiential learning though the application of case studies

		applying it in the case study context.	
Lecturer 3	A	This lecturer was responsible for the Accounting & Financial Reporting module. The course content reveals a series of lectures around the key elements of the topic, supported by readings and case studies	This lecturer used very traditional styles of lecturing which were supported by experiential learning through the application of case studies
Lecturers 1,2, and 3	A	This part of the MBA program ended with an integration week during which the three lecturers designed exercises that were intended to integrate the learning from the three modules. Students were placed in ad hoc groups and they were required to conduct a case study, develop a video, design a pastiche poster on a theme relevant to the course content. Students had to write a report on the case study and do a 5 minute presentation. The written report presentation carried 60% of the assessment marks.	Although these lecturers had recognized the need to integrate the disciplines, the learning methodology applied did not do this. The three lecturers worked together, each having a separate day with the students on their own and then the last day they all worked together. There was no evidence of pulling the three disciplines together in the activities and exercises. The design of the integration week showed creativity on the part of the lecturers, but it showed no synergies with an interdisciplinary or transdisciplinary approach. Rather a mixture of action and experiential learning. No attempt was made to place students in interdisciplinary groups. It is acknowledged however, that this is

			a start towards an attempt to integrate the disciplines.
Lecturer 2	B	This lecturer was responsible for the Organizational Behaviour Module. A guest speaker was present and students were required to take notes on the discussion for a debriefing session later on. The students were responsible for bringing in the guest speaker and making all the necessary arrangements. This lecturer professes to adhere to the philosophy of the "guide on the side" not the "sage on the stage". The course is case study based and students are required to choose their own case study at the beginning on the course on which 4 assignments will be based during the year. In this school class contribution is part of the evaluation but the majority of marks are attributed to the final examination.	The case study methodology was most prominent in this module. The case studies supported an experiential learning methodology. Although students are somewhat empowered through choosing their own case studies and bringing in their choice of guest lecturer, they are not free to generate knowledge. The final examination and responses to case studies were evaluated according to a pre-set model answer reflecting the correct answers in the view of the lecturer.
Lecturer 4	B	This lecturer taught Operations Management. He mainly used a overhead presentation style, supplemented with case studies done in class where the learning	This lecturer utilized the traditional lecturing approach, supported by experimental learning through the application of new knowledge by students to case studies.

		material was applied. These case studies required the students to come up with decision making solutions relating to problems in the case studies. The lecturer had a pre-set answer that was expected from the students. 70% of the marks for this module emanated from the comprehensive final exam. The remaining 30% were allocated to class contribution and the group project which was the class assignment. This project was also based on a case study.	
Lecturers 1 & 2	C	These two lecturers were responsible for delivering the module on Managing Diversity. The curriculum documentation provided related specifically to the class being observed. Here students were asked to pre-read and develop questions around this pre-reading for discussion in class. Since the topic related to managing diversity in marketing in this lecture, students were also asked to discuss an advertisement that they had seen in the media during class.	These lecturers expected students to read the theoretical aspects of the work prior to class. The class experience was then one in which students participated through pre-prepared material. This reflects a classical experiential approach to learning.
Lecturer 3	C	This lecturer was responsible for delivering the module called Effective Teams. The course	This lecturer utilized a very traditional approach of overhead presentation combined with a

		content that was given to the researcher reflected a traditional lecturing type of approach where team building and effectiveness models were presented to the students.	facilitation style. Significant opportunity for student contribution was provided.
Lecturer 5	C	This lecturer was responsible for the Negotiating module. He showed innovation in his approach. Students wrote a 10 minute quiz on the pre-reading for the class, at the beginning of class. The lecture then dealt with some theory but the main part of the class revolved around student groups engaging in a negotiation process that had to deliver an acceptable result by the end of class. Both the quiz (25%) and the negotiations (25%) carried weight towards the final assessment. Peer evaluation was also utilized as an assessment technique. Students were required to do an application project during the course of the module, which contributed 25% to the final assessment. The curriculum documentation provided gave detail on the approach in class and the negotiation exercise.	This lecturer's approach to learning was strongly orientated in action learning. He was creative in his approach to teaching and to assessment. However his learning methodology bore no synergies with an interdisciplinary or transdisciplinary approach.

Lecturer 1 Lecturer 2 Lecturer 3	D	These three lecturers were responsible for the delivering the leadership module on the MBA program. The core content was a journal which each individual had to draw up over the course of the year. This required students to reflect on where they were on their leadership journey and how the MBA program would integrate with that. Psychological assessment was a key part of this exercise. Students were instructed on the use of reflection in journaling.	This was the only example of incorporating reflection in the learning process in the MBA program. This is thus an indication that these lectures saw a need to move towards a more emancipatory learning methodology. Although reflection is important in transdisciplinary learning it is considered a necessary but insufficient premise for a transdisciplinary approach to learning

Table 4.21   Table Illustrating the Content of the Curriculum Documentation

Most marketing department in the business schools visited, were prepared to supply a brochure for the MBA program. Information on course content was extracted from these brochures and examined in order to determine the degree of synergy between the MBA course content between the schools visited. The course duration was based on the full-time program and is an averaged estimate, since completion time in many instances depends on factors such as the duration of the research component. Where schools require an international component to the MBA this often takes different forms and extends over different periods. In summary, student choices often influence the duration of the program.

ANALYSIS OF FULL-TIME MBA CURRICULUM : APRIL 2009	
SCHOOL A **United Kingdom**	**SCHOOL B** **North America**
Duration : 1 year	**Duration** : 12- 16 months (depending on educational background)
Modules :	**Modules** :
Accounting and Financial Reporting	Effective Career Planning
Quantitative Methods	Introduction to Global Business
Information Management	Organizational Behaviour
Principles of Finance	Statistical Methods
Business Economics	Operations Management
Marketing	Economic Analysis for Managers
Operations Management	Corporate Financial Reporting and Control
Human Resource Management	Value-Based Financial Management
Organizational Behaviour	Marketing : The Challenge of Managing Value
Business Strategy	Information Management for Competitive Advantage
Governance	Managing in the Ethical and Legal Environment
Corporate Finance	Managing in the Global Environment
European Consultancy (1 week)	Strategic Management
Business Mastery Project	Global Travel Seminar
	Students do either :

	International Finance Concentration :
	Multinational Financial Management
	Global Investment Analysis and Derivatives
	Global Capital Markets and Risk Management
	Capital Budgeting in a Global Environment
	Multinational Financial Analysis and Control
	Or :
	International Marketing Concentration :
	International Marketing
	Global Consumer Cultures
	Global Supply Chain Management
	Managing and Communicating Brands in Global Markets
	Marketing Research
	Global Internship (3 months)

SCHOOL C **North America**	**SCHOOL D** **South Africa**
Duration : 2 years	**Duration :** 2 years
Modules :	**Modules :**
Statistics	Phase 1 : Management Fundamentals
Economic Environment of the Firm	Orientation

Accounting for Decision Making	Management Concepts
Business Process Management 1 & 11	Leadership
Information Technology for Competitive Advantage 1 & 11	Personal Skills Development
Marketing Management	Economics for Managers
Financial Statement Analysis for Decision Making	Research Methodology
Team Effectiveness Theory and Skills	Decision Analysis
Management Consulting Teams 1 & 11	Management Accounting
Global Strategy	Phase 2 : Management in Context
Leadership, Ethics and Corporate Responsibilities	Business Finance
	Operations and Information Management
	Business Environment
	Marketing Management
	Strategic Management and Innovation
	Leadership
	Phase 3 : Management Enhancement
	Electives (includes programs or an international study tour)
	Field Work
	Research Report

SCHOOL E South Africa	SCHOOL F South Africa
Duration : 1 year	**Duration** : 2 years
Modules :	**Modules** :
Human Resources Management	Business Analysis and Communication Skills
Economics for Business	Micro Economics : Prices and Markets
Accounting and Finance	Human Behaviour and Performance in South Africa
Marketing Management	Macro Economics : National Competitiveness
Operations and Technology	Financial Accounting
Information Systems Management	Marketing
Organizational Development and Leadership	Analytical Tools and Techniques
Finance	Management Accounting
Decision Science	Information and Knowledge Management
Strategic Management	Leading People for Results
Research Methodology	Operations Management
International Business	Managing for Results
Attendance Courses :	Corporate Finance
Business Integration	Entrepreneurship
Group Dynamics	Applied Decision Making
Personal Leadership	Organizational Development and

	Transformation
Social Responsibility	Research Methodology
Electives : Students can select from a range of subjects in the following streams :	Environment of Business
Finance	Corporate Strategy
Entrepreneurship	Global Strategy
Operations and Technology	Global Elective (1 week) (International Study Tour)
Organizational Behaviour	
Strategy and International Business	
General Management	
Marketing	
Sustainable Development	
Two Month Business Internship (Optional)	

Table 4.22   Table illustrating information from course documentation indicating the structure of the MBA programs from the six schools visited

The core modules in the schools appear to follow the general trend of covering basic business courses such as Accounting, Finance, Statistics/Research Methodology, Marketing, Economics, Information Management, Operations Management, Human Resource Management, Organizational Behaviour (which typically includes Leadership) and Strategy.   All schools have a leadership module, as a core module.   Three of the schools include Ethics and Governance as a core module

All schools have a range of elective modules which allow the students to specialize and to obtain more of an in-depth exposure to a business area of their choice.

Five out of the six schools visited offer a form of skills application experience in line with the principles of action and experiential learning. The sixth school is considering incorporating an internship program in the near future. These learning application opportunities range from local internships to global consulting programs and were optional additions to the core program. The duration of these application programs varies from 1 week to three months. So in summary the MBA program at all the schools represented a combination of fundamental business skills in the form of core modules, an opportunity to take one or two of these fundamental areas into more depth in the form of electives, and an opportunity to apply learning in the business environment.

An interesting observation is the universality of the MBA content despite occurring on 3 continents. Context seems less relevant than would be expected.

This concludes the presentation of the results of the data collection process for this research. The following chapter will enter into a detailed analysis of these results, in relation to the research question.

CHAPTER FIVE

ANALYSIS OF RESULTS

5.1.   Introduction

This chapter analyses the results presented in Chapter 4.   Trends are identified and the main themes relating to the research question are examined in terms of whether they support the researcher's conclusions.   The data collected in the interviews, class observations and curriculum documentation are integrated to support the analysis.   Generally speaking the data supported a traditional silo based learning methodology which was substantiated in the classroom observations, the curriculum documentation and in the interview data.   Class observations revealed that classroom set up was primarily consistent across all schools, with all classrooms having tiered half moon shaped seating with the lecturer as the main focus in the front of the class.   This structure reflects the unequal power dynamics in the room, where it is implied that the lecturer has all the knowledge and knows the right answers.   The power dynamic between the taught and the teacher is not equalized as it would be in transdisciplinary learning.   The implication of this is that the learning revolves around extant knowledge as in order to generate new knowledge, a more integrated approach to examining new horizons in learning would require a more equalized power dynamic in the classroom that would support mutual learning.

Generally speaking the combined data do indicate that most lecturers believe that a transdisciplinary approach would add value to leadership development in a postmodern context. Their main concern however, is how to go about implementing a transdisciplinary learning methodology. There appear to be some constraints such as the demands of accreditation systems and the capitalist paradigm inherent in business schools which would act as barriers to a transformation towards a transdisciplinary andragogy.

In Chapter 6, the researcher makes some suggestions and recommendations around how this transformation might be achieved.

5.2   Main Themes in the Research

It is clear from the data that teachers of management and leadership in the sample business schools are, in the main, aware of the challenges associated with developing effective leaders in a postmodern context.   Their efforts to bring innovation into their classrooms however, tend to be contained within current modernist traditions.   Experiential learning, the domain of Kolb (1976) and Action Learning (Revans, 1980) appear to be favourite methodologies in the efforts of lecturers to be more innovative in the classroom.   There was little evidence, based on the data collected, that lecturers had made a link between the challenges of a postmodern leader and an experiential learning methodology, rather it seemed to be more a case of experiential learning being an accepted methodology that had some value in effective learning, rather than one that would help students to be better equipped in terms of coping with complexity and in being critical or creative thinkers.   Whilst experiential learning does provide a rich learning environment, its benefits are related to more effective application of current knowledge, better transfer of learning to the long term memory and as such improved application of learning post training.   In no way does experiential learning represent a radical departure from traditional teaching models that are characterized by the transfer of existing knowledge and rigid constraints around correct answers in regard to grading and evaluation systems.   Grey, Knights and Willmott (1996) argue that experiential learning supports a limited degree of application of student experience, but it does not problematize learning issues….it is this problematization that provides the framework for critical reflection, knowledge generation and innovative solutions to new postmodern problems.   Transdisciplinarity is not viewed as a replacement for experiential and action learning.   These methodologies are aimed at different objectives.   It is therefore posited that transdisciplinary learning would add value to the development of leaders, alongside the use of effective learning methodologies like action and experiential learning.

It is the contention of this research that the nature of the postmodern world demands a radical new approach in the classroom.   The regurgitation of old knowledge will not support leaders in dealing with new, unprecedented issues.   The postmodern world demands innovation and the generation of new knowledge for the resolution of complex new problems.   This research contends that critical pedagogy, supported by transdisciplinary teamwork will provide a learning

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environment that will address this challenge.   The data has been analyzed in terms of this contention.

This discussion continues by analyzing the responses of the lecturers' interview to the first seven interview questions.   Data from the class observations, curriculum documentation and from the deans' interviews is used to support the analysis.

5.2.1   An Awareness of Interdisciplinarity

In line with the objectives of the research data was collected around awareness of interdisciplinary learning and transdisciplinary learning.   In response to Atwater, Kannan and Stephens' (2008) criticism of business curricula being functionally isolated, it was interesting to note that in a number of the schools there was an awareness of the need to integrate disciplines in leadership development.   For example in School D, Lecturer 7 stated ;

> Yes I think we try and use it (integration/interdisciplinarity) to a large extent on our MBA program.   I mean, managers today operate in a complex world where you cannot say this is a marketing problem, or this is an operations problem…everything is just pervasive in a learning program that is why we use it (the interdisciplinary approach).

Lecturer 4 in School D gave further support to the integrated approach in this school by saying that :

> One of the key developments in the redevelopment (of the MBA) was to move away from the silo'd approach/concept to a more integrated approach to show the students the interdisciplinary nature of the different function areas, when you are doing business.

The degree to which this awareness was present varied from just an acknowledgement of the need, to two schools who were already actively engaged in interdisciplinary processes.   In School A, only one of the three lecturers who participated in the research, was aware of the notion of interdisciplinary learning.

This lecturer, although he had some exposure to interdisciplinary learning, was not able to clearly distinguish between interdisciplinarity and transdisciplinarity. School A had added an integration week onto their MBA program, where the idea was to get three academics from different disciplines to work together with the students. This week was characterized by experiential and action learning experiences, such as case studies and making posters and videos. Although it was called an "Integration Week", and there was some lip service paid to the integration of the disciplines this was certainly not a significant aspect of the experience.

In School B, only the lecturer in information technology had exposure to interdisciplinary learning, he stated :

> …it is a desirable thing for many academics to be a boundary spanner, to
> transcend or at least link, with other disciplines in teaching and in research so
> it's a pretty prevalent idea these days.

Although this lecturer was familiar with the notion of interdisciplinary learning, he had not had exposure to transdisciplinarity.

All the lecturers in School C could provide a satisfactory explanation of interdisciplinary learning, although there was not much evidence in the prevailing learning methodologies that reflected an interdisciplinary approach. In the case of this particular school, there appeared to be a growing awareness but they were still grappling with issues around the application of an interdisciplinary learning process. To a lesser degree and not on a formal level, School C was experimenting with interdisciplinary interventions. One innovative example of this was the lecturer in team building, integrating with a finance/business module in order to assist the students in building high performance teams for their group projects in finance. Although this does not reflect a pure interdisciplinary process where all disciplines meet to address a postmodern problem, it is nonetheless a start. Lecturer 4 in this school, in response to a question designed to reveal his understanding and awareness of interdisciplinary learning paradigms revealed this awareness of interdisciplinary processes by stating :

> What you are referring to is kind of the business issue of attempting to pull the
> disciplines together, but here we also say arts and science needs to be brought
> into the picture as well..

He went on to say :

> Now of course management, from my perspective, almost by definition, is
> interdisciplinary within itself because it is social science and business combined
> in most cases.

A number of lecturers commented on the fact that they found it difficult to teach in one discipline and that many subjects such as economics and strategy are impossible to teach without invoking the influence of other disciplines.   In this regard a lecturer in Global Strategy, in School C, had this to say:

> ….we are just making the same mistakes over and over again and so I have to
> teach the course from an historical perspective, so I do talk about history, but I
> draw on Economics a lot in my class, micro and macro economics and we draw
> a lot on finance in doing financial analyses of a company and understanding
> how Wall Street works…..we talk about human resources, marketing, ethics,
> operations, psychology and sociology….. almost every topic that I have studied
> in my career is in my class.

A lecturer in School F, teaching the subject of entrepreneurship explained that the nature of his subject was interdisciplinary, and to some extent transdisciplinary.   He said that his passion for teaching entrepreneurship was supported by the fact that this topic had of necessity, to draw from a combination of many disciplines.   He stated :

> …..so the theory of entrepreneurship, if there is such a thing, draws from
> sociology, economics, psychology, some of the more quantitative stuff and then
> even some of the more kinds of disciplines like strategy and marketing and I
> like the fact that it kind of puts everything together and creates a sort of
> applicable context in which to integrate those different things …

Entrepreneurship is becoming a popular topic in business schools, driven by the need to develop entrepreneurs who will, in turn, stimulate the economy.   It seems, if one ponders on the comments of this lecturer, that the changes in the economy, the politics and social issues, have driven business schools to develop, to some extent unknowingly, a postmodern subject which,

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by its very nature is interdisciplinary. The processes and learning methodology that are associated with the teaching of this topic, will determine whether it moves to the transdisciplinary level, but the possibilities that it will do so are strong, given the significant nature of the interaction amongst the disciplines, and the lack of extant theory on entrepreneurship. It could be said that modern subjects like entrepreneurship and strategy, for example, have created a demand for an interdisciplinary approach.

A colleague in School F, Lecturer 2, had had significant exposure to interdisciplinary learning in the MBA program. He had this to say :

> Ja, I am familiar with interdisciplinary, lots of thoughts around ensuring that learning does happen across the silos. From looking at case methods, teaching discussions in general, one tries to be I guess, to move out of the particular discipline to problem solving into a focus on management practice, rather than disciplinary learning and secondly, in the area of curriculum design, particularly on the MBA, the call is continually for, I guess, an interdisciplinary, transdisciplinary and non-disciplinary approach and whether that is action learning as a methodology or the design of the curriculum so that there are different perspectives on the same thing, …..

Noted is the flaw in this lecturer's thinking that action learning and an andragogy such as transdisciplinary learning could somehow overlap. These two concepts are completely different and discrete methodologies and they serve a different purpose.

This lecturer described the current progress towards a more interdisciplinary approach in MBA teaching. He went on to say :

> ….it (interdisciplinary learning) is big, I mean you get the new Yale rules, who have got all sorts of different approaches to that, so that is a big debate. And then, on a half way stage, there is a thought that we have had of there being foundational courses which are pretty well silo based and then more integrating courses, although they are still subjects, but something like strategy for example, is more of an integrative approach. And then we have the overseas electives, which is not a course, but an opportunity to seek an integrating link.

Only one of the schools, School D, had experimented with interdisciplinary student groups. It would appear that the student syndicate groups were, for a short period only, required to be representative of the different disciplines, simply to attempt to mimic the real business world. None of the other schools had attempted to create student groups representing the various disciplines, in fact in most instances the groups were randomly formed by the students themselves. In some instances faculty from different disciplines collaborated both in terms of the development of curriculum, and also in interacting during the delivery of modules in order to support an interdisciplinary process. This was particularly evident in School D, where it was a requirement that all the MBA faculty work together in the development of the program content.

30% of the sample, when asked about their concerns about current leadership development methodology, spoke of a need to link the core disciplines traditionally associated with MBA programs. 70% of the sample of lecturers responded positively when they were asked if they were familiar with the term interdisciplinary learning, and generally it was felt that this was a very positive addition to the learning methodology for developing leaders. Only three of the lecturers had not heard of interdisciplinary learning.

From the above it can be concluded that interdisciplinary learning is something that faculty in the business schools surveyed are beginning to become aware of. The degree of the awareness was dependent on the individual lecturers and the schools they were operating in. The awareness of interdisciplinarity varied from almost none at all, to some schools who were more aware and were experimenting with the concept, to schools who believed that it was the only way forward in MBA classrooms and who had redesigned their curriculum to incorporate a more interdisciplinary approach to developing leaders.

A comment by the Dean of School C illustrates the lethargy surrounding the implementation of an interdisciplinary andragogy in business schools :

> I am sure a lot of management schools today would argue that they integrate, but the bottom line reality is that I have yet to go to an ACSB (Association of Canadian Business Schools) Conference and EFMD (European Foundation for Management Development) Conference where we are not talking about the challenge of integration. If we were genuinely into integrating we wouldn't be

having these discussions some 25 years later and we are still faced with that business school/university underlying construct that says, as an academic my career is optimized by pursuing functional specialization, by publishing in the best journals in my field and by not getting excessively distracted by walking across boundaries. I then, as an instructor, become a role model for my students who are not going to become academics, but they are going into a real world where it's all about integration.

This quotation not only reflects the lacks of impetus around implementation integration in business schools around the world, but it also alludes to some of the barriers that might be in place that would retard this process. One can understand from this comment that transformation of the business school andragogy in order to support an interdisciplinary approach, would not be superficial, but it would involve a major upending of traditional andragogy at the structural level, and at the very heart of the academic foundations of the school. It was interesting to note that in spite of this Dean's passion for interdisciplinary learning the class observations in his school, did not reveal any attempt at interdisciplinary teaching or learning. There appears to be a blockage in information flow between the academics and management in the school. One has to question the validity of the Dean's support of interdisciplinary learning when there is no structured process to support the implementation of this kind of learning methodology in his school.

It is significant that in spite of the awareness of the need for an interdisciplinary approach this was not evident in any of the class observations. No attempt to cluster syndicate groups into interdisciplinary teams was observed. The hard sciences, for example finance, economics, statistics still relied almost completely on the "chalk and talk" method of learning and this methodology was also evident in some of the so-called softer sciences.

5.2.2   An Awareness of the Concept of Transdisciplinarity

Very few of the lecturers in the sample were familiar with transdisciplinarity, although some did attempt a definition; invariably this was confused with interdisciplinarity. Once the researcher gave a definition of transdisciplinarity and outlined the differentiating factors between that and interdisciplinarity, the majority of the lecturers agreed that this would be a very beneficial

methodology to apply to the development of leaders who would go on to deal with the challenges of a postmodern world.   Mostly the elements of transdisciplinarity that were valued by the lecturers were the framework that it lays for critical and innovative thinking, as well as its characteristics of being a knowledge generating unit.   Lecturer 3, School D, was particularly familiar with and enthusiastic about transdisciplinarity.   Interestingly he had been exposed to the concept in a book by Jan Smuts, called "Holism and Evolution" which was written in the 1920's. When asked for an explanation of the concept he said :

> I guess the way I would interpret that, my understanding of it, is that where it is not just disciplines interacting with one another and exchanging similar space, but where the interaction between the disciplines actually gives rise to a qualitatively different content or understanding of whatever….involving new knowledge generation.

An Economics lecturer at the same school had an interesting history of engagement with transdisciplinarity.   He explained :

> Yes… I actually…. I am part of the Institute of Futures Research, which is based on a transdisciplinary worldview, you've got a global view, an African view, South African view….that's my real job.   I am the Director of the Institute.

He went on to explain :

> This is a recognized way of relating to the complexity of the world…..the discipline futures thinking….there is no other way of doing it.   The future is not just all about one particular areas such as economics or such as politics and futures research, futures, thinking, futures study….take your pick, obviously what one tries to do is building up knowledge about…you know the theoretical knowledge the corpus of knowledge about futures per se is also a part of what we are trying to do.   Futures is about how the future will unfold yes.,…futures…. There is more than one possibility.   Transdisciplinarity is one of the cornerstones of future studies.

Although this lecture had had considerable involvement in a transdisciplinary paradigm, he was not sure of how he would implement it in a learning process on the MBA program, although he did acknowledge that he thought it had a great deal of value to add in that context. This lecturer favoured a very traditional lecturing and "talk and chalk" style of teaching, in spite of his significant exposure to transdisciplinarity. So once again the researcher encountered the awareness of the notion of interdisciplinary and transdisciplinary science, but not quite yet sufficiently developed to the point that it sits happily alongside the traditional methodologies such as action and experiential learning which have been unpacked into trusted learning processes.

Although unaware of the concept of transdisciplinarity, some lecturers had begun to incorporate elements of a learning methodology that had strong synergies with transdisciplinarity. An example of this is Lecturer 3 at School C, who had implicitly recognized the challenges of the complexity of the postmodern business world and had altered her teaching style in a way which is synergistic with a more equalized power differential which is a necessary, although insufficient, condition for transdisciplinary learning, particularly in keeping with the Habermas' (1979/1981) notion of communicative action. She said that :

> I am a fairly transparent teacher and there is not a big power difference….I don't teach with a big power differential….I really do feel……that if we can be open with each other and willing to confront the tough stuff and talk about it and struggle with it sometimes with difficulty, but struggle with it that we do a better job, we have more chance to create new knowledge and so part of what I feel is, for me is, I can't ask them to do that if I am not willing to see them as partners in the learning process because the hierarchy, typically it tends to….then they are looking for okay what's the answer she wants as opposed to…my feeling is that they actually ….they learn more and potentially end up respecting more about what I am trying to do if I can let them see how I am thinking about it as opposed to always needing to be the expert, always have everything absolutely rigidly controlled…………

This observations of this lecturers class did not support the application of a more equalized power dynamic. However it would be unfair to claim that this lecturer did not do this in other

classes, given that the researcher only observed one class. Her discussions in the interview were enough to convince the researcher that she was constantly challenging her teaching style and endeavouring to bring an emancipator approach to teaching.

Lecturer 1 in School D commented on students need to be exposed to the rapid changes in the postmodern world. He said ; "We try and give them a snapshot of how radical it's going to be in 30 years." He commented in response to the question regarding his awareness of transdisciplinary learning, that in teaching today one is continually trying to re-create. He believed that this re-creation needed to be the thrust of all teaching. The component of transdisciplinary learning that spoke to knowledge creation integrated with his notion of re-creation. For this lecturer, reflection was a very critical component of learning. The dialogue process inherent in transdisciplinary processes, creates a space for reflection and thus will support this lecturer's vision of how students should be taught in order to bring them alongside the postmodern premise for enlightenment and new knowledge creation.

Although the lecturers expressed enthusiasm regarding the concept of transdisciplinarity there was a definite concern about how to go about implementing transdisciplinarity in the development of leaders. Evidence of this is reflected in the following quotations :

Lecturers 1 and 2 in School C :

> I understand the words you are using (in relation to transdisciplinarity) so I am trying to translate it into what would that really be like in a classroom, or would you be in a classroom for you know….

A colleague, Lecturer 6 in this same school supported the value of transdisciplinary learning and said :

> The problem is for many years managers were really trained to make decisions, not solve problems, choose among alternatives, so I think the interdisciplinary approach might be a better foundation for choosing between "a" or "b" or "c" versus transdisciplinarity which would be to solve a problem which is really….in order to be successful today you have to be innovative, radical innovation and I think that a lot more problem solving skills sets are needed. In

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the old days where we had sort of more of oligopolistic competition, we did more choosing and decision making and less problem solving. The world is evolving, it's more complex, there is more competition so a transdisciplinary approach is almost necessary to be successful, because it's just a different competitive environment than it ever has been.

Although this lecturer is supportive of a transdisciplinary approach, the above comments reveal a lack of understanding of the knowledge generating, inter-disciplinary approach in transdisciplinary learning.

Lecturer 4, in School F acknowledged that in areas such as project management and in most business issues "I don't think that it is possible to work in the world today without working in a multi-disciplinary mode." Although this quote reflects that this lecturer had seen the need to work across disciplines, he was not familiar with the notion of transdisciplinarity. This initial awareness on the inter and multi-disciplinary level, is evident of a beginning of an awareness of the need for disciplinary integration, but it has not yet been taken to the level of transdisciplinarity.

The concerns of some of the lecturers around traditional leadership development methodology has resulted in these lecturers introducing more creative thinking into the experiential and action learning exercises in their curriculum and classroom processes. Class observations revealed that , in this respect the lecturers had displayed a great deal of innovation for example, in the way they utilized case studies in group interactions and various other innovations including games, tasking the students with bringing in their own guest lecturers, building posters and making videos and creative role plays, were amongst some of the very useful and innovative learning methodologies introduced by the lecturers. It was clear however, that none of the lecturers had taken the leap of faith towards a transdisciplinary process and given their lack of exposure to this concept, this is understandable.

5.2.3   Challenges Experienced in MBA Classrooms

This section analyses the data collected from the lecturer interviews relating to the challenges they face in teaching MBA students.

The idea of interdisciplinary learning was an issue that was a challenge for many of the lecturers interviewed.   They had acknowledged that the real world and certainly the world of business, is not structured in silos.   They had therefore acknowledged a need to move to a more interdisciplinary learning methodology.   They were however, still grappling with how to do this.

8% lecturers acknowledged the need to integrate the disciplines.   Interestingly a further 35% had incorporated methodologies that had some synergies with a transdisciplinary approach, these were the incorporation of reflection activities (12%) and the use of dialogue (23%). Observations of an integration week at one of the business schools revealed attempt to integrate the disciplines, however, this fell somewhat short of the criteria for successful interdisciplinary integration with the focus being more on creative action and experiential learning.   Another school broached integration by integrating the Team Effectiveness Module with the Business Process Project module in order to assist the students in optimizing the team performance for this project.   Although this is an innovative start, it still falls far short of the complex nature in which disciplines interact in the real world of a postmodern leader.

Lecturer 3, in School E, stated that "

> You talked about the silo thing when you introduced your research, I think we
> are still very guilty of that and I think, even though I have tried to explore it, I
> don't think our way of doing things is conducive to that.

This lecturer had attempted to break down the silos by engaging with his colleagues on the MBA, but not with much success.   This issue is commented on further in this lecturer's responses to the question of whether he engaged with other academics in the process of developing and applying his MBA module on Information and Knowledge Management.

Lecturer 2 in School D stated :

> A lot of our teaching and lecturing is breaking down the historical silos, we talk
> about networks, or leadership webs. Silos are there to keep Human Resources
> happy…at least we know where everyone sits…….we work directly to break the
> silos."   He went on to say that "Universities need to live the interconnectedness

of what this world has become.   We need to create this interdependent leadership web in business….universities need to become that and that's a complete mindshift from where universities are traditionally.

In spite of this obvious support for an interdisciplinary approach class observations and the review of curriculum documentation did not reveal any examples where students engaged in dialogue in interdisciplinary groups, to solve real world problems.   This shows a movement in the direction of acknowledging that the older silo'd learning methodology is no longer useful, but transformation to a transdisciplinary mode of learning still has some way to go.

Lecturer 4, School F emphasized the interdisciplinary nature of the business world, but pointed out the MBA teaching methodology was lagging behind in acknowledging this and in changing it's curriculum to reflect this reality.   He acknowledged that MBA teaching programs do expose the student to different disciplines, but not to how these disciplines are integrated in the business world.   He claimed that it was not necessarily the content, but the way the MBA is taught, that is, in a silo'd fashion that isolates disciplines and does not acknowledge their interdependency, that was problematic.

Lecturer 2 in School F revealed how the structure of the academic environment, works against integration of the disciplines.   He stated :

> So I think if there is a concern….. there are two opposite concerns…. I am concerned that globally business schools seem to be heading remarkably quickly and oddly into specialized, disciplinary, academic roots in their faculty.   So in order to compete in the academic world….the typical North American and European top school would be saying, we need our faculty to be recognized researchers, which means publishing in A grade journals, or B, but preferably A grade journals which are difficult to get into as you know, rejection is 19 out of 20.   And those journals are often disciplinary limited, so there would be Economics….. or whatever.

The implication of this statement is that for academics to be recognized and promoted, they are forced into the specialization mode and this does not leave room for an interdisciplinary approach.   This gives some idea of how deeply the silo'd approach is embedded into the

framework of academia and how a transformation to a transdisciplinary approach would challenge the very foundations of this age-old infrastructure.

5.2.3.2   *Skills Acquisition as Opposed to the Development of the Individual*

There was evidence in the secondary research as well as in the data collected, that MBA methodology tends to focus too much on providing students with technical skills, such as, how to read a balance sheet, how to use analytical tools for decision making or how to use statistics in strategic analysis.   This was recognized by Lecturer 3 in School C through interaction with the business field, who had advised her and her colleagues in the business school, that they wanted "people who have not only the technical skills, but the soft skills for being able to manage things."   When questioned about the concerns that she had about extant MBA learning methodology this lecturer expressed the concern that

> We have focused very much on skills and results…and not on thinking about the fact that we are really helping shape human beings who will operate in the business world.

 This lecturer and her team had responded to this advice by attempting to incorporate what she referred to as "business process" in the student curriculum.

Lecturer 3 from School D expressed concerns about MBA learning methodology that tended to be more characteristic of skills training than of the complex capabilities required by modern day leaders.   This concern is reflected in the following quote from the interview :

> You cannot teach some-one to run marathons if your teaching methodology is about lifting weights.   So there is an absolute dialectic interactive relationship between the way that content is taught and the outcomes of the individual.   My concern with almost every MBA I have come across, with some exceptions, is that they teach MBA's as an absolute personification of an industrial age organogram.   So the pieces of knowledge are taught in insular silos and then, another very vital part of it is, the knowledge is taught in short bursts which only requires predominantly memorization, regurgitation and loss of 90% of information within two months.   So the teaching methodology from an

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organizational perspective reflects the work environment of a first line
supervisor.

Although the above discussion is not directly about skills acquisition, the concern is about the simplistic, linear teaching methodology which one would normally find in skills training. The lecturer's objection has to do with the lack of synergy or appropriateness of the learning methodology with the complexity of the world of a postmodern leader. If he is correct in saying that the level of MBA graduates is at the same level as the first line supervisor, then this has catastrophic implications for the effectiveness of MBA graduates in today's world of leadership.

This lecturer's concluding comments regarding the way we teach MBA students reflects the fact that the learning methodology is not focused on outcomes, nor is the design of the curriculum asking the question, "what makes a good leader" as core to the MBA curriculum. He concluded this section by saying :

> current learning methodology is not wrong, but it is woefully inadequate and I
> am seeing it in the results….you know you get MBA's that cum laude and then
> they fundamentally screw up a department inside a company because they
> haven't been taught the right skills. So I have a real concern about that.

In contrast, Lecturer 1 in School B, when asked by the researcher if he learned with his students, he revealed a preference for a hierarchical, "sage on the stage" teaching methodology by saying :

> No, (I don't learn)……I set the topics.

Exposing the dichotomy between the learning methodology and the competency needs of a postmodern business leader, this same lecturer made the following comments, with reference to the challenges faced by 21st century leaders :

> It will be a complex, real, messy world out there……they (leaders) are going to
> have to be comfortable with ambiguity

These two statements clearly reveal the dichotomy between the teaching methodology and the need of the student, who is essentially an emerging postmodern leader. More than this they reveal that, certainly in this instance, the lecturer acknowledges, at a very superficial level, that

the environment of a postmodern leader is complex, but they have not made the connection between this and a need to change the way they teach. In this instance the learning methodology and the nature of the environment postmodern leaders find themselves in, are clearly at odds. This paradoxical situation found in many of the MBA classes observed, illustrates support for the concerns of Lecturer 3 at School D, discussed above.

Lecturer 3 at School D described the approach needed in modern MBA classes as being the difference between a "sage on the stage and a guide on the side", with the latter being the ideal. He also emphasized the need for teaching in MBA classrooms to have an impact on three levels, on the individual, in interaction with other people and on the system in which they work. He argues that if an individual is not perceived as different after the completion of an MBA, then the process of learning has been completely ineffective.

5.2.3.3 Time with the Students

A number of lecturers had significant concerns about the amount of time with the students the structure of the MBA program allowed them. These concerns were centred about the fact that they had too little exposure to the students and this forced them to compromise on content, both in terms of the depth of the content, and the amount of content they could cover. In the class observations there was a tangible sense of urgency and a tension between what needed to be done and the time available to do it.

An example of this is a comment from Lecturer 1 at School F: She said :

> I don't think we spend enough time with them (the students), I understand it's a
> modular basis and they can't do huge amounts of detail but 7 mornings really is
> absolutely nothing. I think it fundamentally undermines what we can do.

A colleague at the same school, Lecturer 2 concurs, revealing the trade-offs that the time limitations enforce between teaching and the opportunity for students to become immersed in the content themselves. He stated :

> There is a trade-off between classroom time and what we think we need to teach
> them (the students), and student "doing"…exploration time and it has to be a
> trade-off because I think it is important that we introduce them to stuff that they

may not know or don't know but we also need to do it in a way that allows them to share their expertise and wisdom and also their questions and to guide the process to some extent.

The problem of "time spent with the students" may not seem to have obvious connections with what is inherent in a transdisciplinary learning methodology. However, the application of a transdisciplinary learning methodology would have implications for time spent with the students, it may in fact make more demands on time. There are however creative solutions to this in the form of the optimal utilization of technology. This aspect is discussed in more detail in Chapter 6, in the research recommendations.

5.2.4   The Leadership Challenges of the Postmodern Context

There was a significant degree of synergy of thought across the various lecturers interviewed in regard to what kind of challenges postmodern leaders would, or were facing. The emerging themes were around increased complexity, the ability to think critically, social challenges and the ability to work with diversity. These were some of the main issues raised. Lecturer 3 School A stated:

> My feelings are that they will need to be responsible to change; be adaptable by understanding, underlying principles rather than today's specific rules, regulations and ways of doing things; have good interpersonal skills, have an understanding of other cultures; know where and how to find answers, rather than necessarily have all answers to hand.

The issue of constant, turbulent change and concerns relating to whether we prepare MBA students for this, is well illustrated in the following comment from Lecturer 3, at School C:

> …..but I think that what we don't teach them at all is that it's going to be changing, you know…and it's going to be….in psychology they talk about a permanent white water and you know it's…….we have to somehow prepare them to function in permanent white water and I am not sure that we do that by content stuffing…..

A colleague at the same school, Lecturer 4, spoke of the need for flexibility and the concept of career mobility.   He also noted the role of knowledge in a leadership context.

He said :

> I think students need to be flexible, I think they need to build on their knowledge and they need to take that knowledge and be willing to …..it's almost like going from knowledge to wisdom…. They understand certain things but then they have to apply it in a way that makes sense but they also have to be very aware that their careers in a particular company can be very short lived and that they had better be ready to move on, maybe even before they are told it's time to move on.

In support Lecturer 1 in School B talked of a "complex, real messy world out there", of a lack of "recipes or cookie cutter formulae" and the need to listen to a lot of people with different world views.   This latter comment suggests a predilection for reflection.   This lecturer also spoke of the need for postmodern leaders to be comfortable with ambiguity.

Lecturer 3, in School D said this about the challenges the postmodern leader will face :

> …the complexity of business, logistics, speed has killed the hero leader.   So your classic entrepreneur of….up until maybe in the 1970's who started up a business, who understood the business, or some-one who grew in the business, you often found they had spent 20-30 years in the business…they were like conductors who listened to an orchestra and could immediately pick up a violinist in the third row that was playing incorrectly…..they smelled and heard the organization.   That has changed…..there is such a wealth of data, information, complexities that one or two individuals or even a tier of leadership can no longer understand it.

He went on to say that :

> …complex thinking, paradoxical thinking, sustained focus on a problem which sometimes…and the patience…the deep patience of immersion into a situation and allowing insight to come out of the immersion….the MBA's don't teach

that. They confuse the capacity to just hang in there and do 100 metre sprints day in and day out for a year, 2 years or 3 years whatever the type of program….with certain things such as…(you know Warren Bennis says that reflection is arguably the biggest leadership requirement)….such as immersion in confusion, and just sitting with the confusion of fuzzy logic and fuzzy information…immersion in…where there is no cause and effect….immersion in….Arnold Mindell talks so lovely of "sitting in the fire" …where sometimes you have to sit in the washing machine…you just have to sit in the confusion and you have to listen to the other voices.

The allusion to reflection as an important component in preparing leaders for the 21st century is noted. Reflection has been included in the recommendations for the application of a transdisciplinary learning method in Chapter 6 of this report. This comment, as well as significant commentary on reflection in the secondary research, provides support for this.

A colleague in the same school, Lecturer 6, took up the theme of a paradoxical world and commented:

One is that the obvious thing being more and more complex, and that the real challenge is going to be how to lead subject to various paradoxes, for example leaders of the future will have to be able and willing to let their employees, people working for them or with them, have free reign when it comes to being creative and imaginative, but at the same time, they have to know when to lay down the rules and say ….hang on, okay, whoa, you have had a few days and a few weeks to be really imaginative and clever but remember we are running a business. Those kind of paradoxes….

Lecturer 2 in School F, confirmed many of the themes relating to complexity and stated :

There will be more globalization in terms of communications getting quicker and closer, competition getting stronger and quicker, closer. So all of that stuff, whitewater stuff will be more.

There appears therefore to be consensus amongst the lecturers interviewed that the key challenges that leaders will face in the postmodern context are high levels of change, ambiguity, complexity and diversity. There is a need for students to be flexible, comfortable that most things will be short term and that in their decision making they are likely to be faced with enormous amounts of data. There is a need for a new way of doing things, more listening, more interdisciplinary consultation; because of their complexity the problems of the postmodern era do not lend themselves to successful resolution of one person. The question this research asks is where in current MBA curriculums are students taught to deal with complexity and ambiguity and to make decisions in interdisciplinary consultations that require the application of the art of dialogue at an advanced level, in order to reach a solution to a complex and changing set of circumstances.

5.2.4.1   *A Global Economy*

The data collected show that there is consensus that they (students as leaders) will operate in a global economy and they will be faced with increased competition from all parts of the world. As a result their ability to be innovative in product design is crucial to their company's survival. On the positive side there would be a large number of markets available on which to sell products. Outsourcing will be the norm, as will intense competition. Small windows of competitive opportunity will arise and will need to be seized and positively exploited to ensure survival.

In support of this, Lecturer 6, School C, had this to say :

> So I think future leaders need to understand there is a lot of talented companies out in the world that will have radically innovative ideas and their goal is not only to succeed, but it is to put you out of business, so survival is no longer assured or guaranteed the way it was in the post World War 2 period. Today survival…..you have to earn your survival every day and companies like today's Citigroup and AIG and Lehman and Bear Insurance….gone you know, so the investment banking industry basically gone, so a very high turnover of companies and industries in a highly competitive, global economy and very short windows of competitive advantage or windows of first mover advantage.

You almost have to have a pipeline mentality, like they have at Apple, new products, new industries all the time….rolling things out….otherwise you won't survive a very fast, changing context.

It is clear from this statement that students would have to retain a hunger for knowledge that goes way beyond their student experience. It is this pursuit of knowledge that would enable them to stay ahead of the global market with innovative solutions and creative ways of going about their business. This requires an equal amount of innovation in teaching and learning.

5.2.4.2 Critical Thinkers

Running alongside this theme relating to the need for leaders to be creative thinkers was a concern that current learning methodologies in MBA classes, do not sufficiently stimulate or encourage critical and creative thinking. This statement from Lecturer 2 in School C, illustrates this. When asked by the researcher whether she believed that the current culture in MBA tuition actually works against people being creative and innovative, her response was :

I think ….yes…. but I think those who win big are those who are able to see it a little differently and were willing to take some risk.

This comment was supported by her colleague, Lecturer 1 in the same school who stated :

I think where it (transdisciplinarity) will have great value is….and this is what I have to get into….is it would definitely generate or stimulate critical thinking, which, I don't know about you, but we have a problem generating…..getting students to be innovative and critical.

Another colleague in this school, Lecturer 4 said :

I wish we spent more time on critical thinking, to me that is an essential aspect so that people can look at an arguments and see whether or not it holds up…..can you really prove this? I don't think we do enough of that. When I went to high school and college we were always looking at things from a logical perspective, I had courses in logic…..so you would look at something and you would say well….does that make sense? Look at the premises…what's their

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conclusion?….if we could teach students how to think critically I think we would be in much, much better shape. Sometimes I think what we do is we just give them the equivalent of matter, content, we kind of dump it on them.

Lastly, Lecturer 5 in School C said :

I don't think we really do anything that really pushes people to think outside the box, to think…..I think we build on, I think we hit the fine-tuning knobs on, you know, the evolution of the business model, but we don't hit the course adjustment knobs, so get people to really be out there, stretch out….and I think we punish far out thinking, I still believe that as a society and as academia. I think that's what it's going to take, it's going to take being able to deal with really strange sounding stuff, something that doesn't fit, you know, it challenges preconceived notions if we are going to solve tomorrows problems.

A lecturer in School E had experimented with the innovative use of case studies, in order to create an opportunity for the students to use critical thinking in their approach to the case study. His approach was to utilize controversial case studies and then to require the students to take up contrary positions to the case study. The overall aim was to facilitate an argument or a debate. This attempt to stimulate critical thinking was supported by this lecturer by presenting students with more than one option, rather than a right answer. This creates awareness in the student that there is always more than one way of thinking about things, and will hopefully eventually result in them automatically looking for different perspectives and viewpoints before taking a decision on an issue. The move towards an interdisciplinary approach is implied in this lecturer's responses to the need for students to be encouraged to think critically.

Lecturer 4 in School E also expressed a concern about the lack of critical thinking evident in business school learning processes. He said :

We should be challenging our students to think, both in the classroom, in their assignments and when they are out in the business world and our students have a huge reluctance to think…..they want to learn, they don't want to think.

Lecturer 4 in School F expressed a concern that MBA teaching is reductive.   He said :

> It's reductive, it's analytical and it's backward looking. Very little of it involves
> synthesis which is creating, which is design, which is really forward looking and
> allows one to take insight into something new, so the creation of something
> new……very few people who graduate from an MBA program know how to
> look forward, they only know how to look backwards.   I think that there is a lot
> of analytical thinking as opposed to critical thinking. Analytical thinking say's
> "here's the maths and this is what the maths tells us"….it's very reductionistic,
> whereas critical thinking is at a higher level than that.   It says "never mind what
> the equation is….why are you even using an equation"….and "is that the right
> question?".   Critical thinking, to my mind, helps us ask the right question, once
> you ask the right question, your analytical techniques help you to answer it.

This contribution is interesting in the distinction it makes between analysis and creative
thinking.   This is the first time the researcher encountered this distinction.   The question comes
to mind "do lecturers who teach their students mathematical analysis believe that they are
teaching the students to be creative, and are they?   In fact some of the lecturers felt that creative
thinking was sometimes punished, rather than rewarded.   It is noted that Rubin and Dierdorff
(2009) include creative thinking in their empirically derived model of managerial behavioral
competencies.   Creative thinking is an example of an activity that takes place within their
competency category of Managing Strategy and Innovation.   Lecturer 2 in School C saw value
emerging from a transdisciplinary learning methodology in response to this issue.   When asked
whether she felt that transdisciplinary learning had value to add to leadership development, she
stated :

> Well to the extent that it allows people to think outside of the box absolutely.   It
> doesn't limit thinking or restrict or contain it in any way that allows them to be
> creative,   to   draw   on,   I   would   think,   unusual   uhm,   I   don't
> know…..topics/subjects/whatever to make sense of the work of leaders, in that
> sense yes it would.   The challenge is creating the environment that allows that
> to happen….where people feel safe.

Clearly the faculty in School C were fairly consistent in their concerns regarding the lack of focus on creative thinking in the MBA classroom.   Stimulating critical thinking in MBA classrooms, as revealed by this research, is a challenge which needs to be responded to.   The implementation of a transdisciplinary learning methodology would go a long way to assisting in this.   The consultative nature of transdisciplinarity and the use of deep dialogue would enable the students to diverge from the obvious and indulge in critical thinking in response to resolving complex problems.

An innovative attempt by Lecturer 1 at School F, was to engage with colleagues and to set up some contradictions between her micro economics course and other modules on the program, for the purpose of creating opportunities for viewing things from different perspectives and stimulating a critical thinking process in the students.   Another lecturer at this school believed that it was the role of the lecturers to engender philosophical conflicts and to get the students to deal with the tensions that exist in the modern world.

5.2.4.3 Cultural Diversity

A number of lecturers indicated that they believed that leaders in a postmodern context would need to be able to work in a context of diversity and to be able to get along with people from different cultures.   One lecturer felt that well developed interpersonal skills would be a great ally in dealing with the conflictual nature of a heterogenous and diverse environment.   This aspect of the postmodern context was often raised by the lecturer sample.   Indeed it was noted by the researcher that this cultural diversity was very evident in the make-up of the student populations in the MBA classes and the various schools.

This thinking was supported by Lecturer 6 in School D who said :

> But in the world of globalization diversity speaks for itself, language, culture, population groups, gender….a whole range of diversities and I think probably what is also going to become more important is, I know people don't like these words but, knowing how to deal with the softer issues….one could almost argue that doing the company's books or doing a regression analysis is almost a technical capacity, which you could almost outsource, but the real challenge will be I think for leaders, and especially leaders who have grown up on the 20th

century….is to deal with the softer issues, the HR kind of stuff, the people things.

To relate this data back to the research question, it is posited that the nature of transdisciplinary learning methodology, with its focus on open-ended dialogue and the exploration of solutions to problems by listening to the contributions of many people, representing many disciplines, clearly has value for encouraging and supporting creative thinking and for the generation of creative, novel solutions for situations that have no past precedent. Therefore the inclusion of transdisciplinary learning processes to current MBA teaching methodology, is likely to address one of the key problems raised by the lecturers in this sample, that is, that of coping with diversity.

5.2.4.4 Complex, Messy Problems

The data collected pointed to the following themes; that problems will be complex and messy, and there will be no clear solutions; valid and credible data to support problem solving will be difficult to come by; preconceived notions will be challenged; the context of problem solving will be ambiguous, the nature of problems strange, unprecedented, challenging and unpredictable. To illustrate this Lecturer 3, at School D described an undergraduate program at their school called "Complex Problems Creating Solutions"…..she described this as follows :

> The idea is any problem of any complexity is not going to get solved by one disciplinary perspective, it's got to have multiple disciplinary perspectives and if you believe in the idea of why we have teams at all……why do we have teams at all in organizations…well it's the idea that we hope if the team process is working effectively then you are taking everybody's knowledge but you do more than that….it's more than the sum of the knowledge, it's a synergistic effect so you are creating new knowledge because you have got all these different pieces and you create new perspectives that nobody individually had.

The aforegoing comment illustrates that this lecturer had already made the connection in her mind between complex problem solving, as is characteristic of the postmodern business world, and the need for interdisciplinary and transdisciplinary thinking.

5.2.4.5 Continuous Change

The lecturers thought that they (the students) will need to be able to respond positively to continuous and complex change. One lecturer spoke of "continuous white water" in painting a picture of a turbulent, chaotic, constantly changing environment. Others spoke of a need for the students to be adaptable and flexible in order to survive in a changing world.

Lecturer 4 in School F stated emphatically that it is "change that our students have to deal with".

He went on to say that :

> …we are training them (MBA students) for jobs that don't even exist…you start looking at the jobs that are emerging and you realize you are going to be designing people for a career that doesn't exist, so jobs in industries don't exist, companies don't exist, entire sectors of business don't exist, business models are being created all the time, change is massive, so whatever you learn becomes obsolete quite fast from a process point of view, from a content point of view."

Lecturer 1 of School D echoed these thoughts by saying :

> "There is only so much we can take from the past, we have to create a new future that's not now and that's a completely new place and that's quite tough for people. The pictures are quite radical and it's like the same example for teachers. Teachers should be preparing children today for careers that don't even exist yet. It's the complete unknown, and it's being able to create people that are able to think, create people that at all levels in a company, or in a world, are leaders in their own right."

Transdisciplinary methodology is uniquely positioned to embrace the resolution of complex messy problems and continuous change. It is the precise nature of transdisciplinarity and its process of deep dialogue, reflection, deliberation and joint problem solving that will enhance the ability of leaders to make better decisions in the face of complexity and continuous change.

The above themes emerging from what lecturers' thoughts were regarding the challenges for leaders in a postmodern context, reflect some of the notions of postmodernism described in the

literature review. The notion of fragmentation, discontinuity and chaos of Harvey, (1984) is clearly reflected, as is Foucault's (1979) emphasis on discontinuity and polymorphous correlations in place of simple or even complex causality. The lecturers' call for students to be flexible and adaptable in this postmodern context, is consistent with Klages's, 2007 claim that the postmodern era pays scant recognition to order and calls for ambiguity and unpredictability to be embraced. Clearly the experiences and perceptions of these lecturers are compatible with what the postmodern theorists have been writing about since the early 1970's. The contribution of complexity theory, and particularly the work of Morrison (2008) also supports the call for flexible and adaptable leaders in its reference to autocatalytic systems and autopoiesis as does as his view that order emerges from chaos, not from control and predictability. Morrison's reference to the process of emerging orders claims that it is dependent on "creative, open-ended, imaginative, diverse and rich behaviors, ideas and practices of individuals and systems". In reading these descriptors one cannot help but be reminded of the synergies that are apparent with the process of knowledge generation characteristic of a transdisciplinary team.

5.2.4.6 Leaders as Stewards in Society

There were strong themes around the role of a leader as a steward in society. This was described as a person who would have a strong impact on the ethical issues in society, who

would embrace laudable values and be willing to question and correct those things that impacted negatively on society. Lecturers interviewed spoke of "selfless leaders" for whom the needs of society were at least as important, if not more important as their own individual need to be successful and wealthy in their own right.

Lecturer 5 in School C revealed his concerns in this regard and said :

> I don't think we develop selfless leaders. I don't think we even talk about it….I
> mean we talk about, in all schools that I have seen, this school has done a lot in
> the area of ethics and all the rest that are very much part of the program. I think
> every school does so I think we try particularly with the corruption that has
> happened in the recent past with companies, we do worry about the ethical side
> of things but I don't think we really get into the issue….the selfless part, I really
> don't.

The introduction of Ethics as an important part of the MBA curriculum, in response to this challenge was apparent and two of the schools visited already had Business Ethics as a module in the MBA.

Lecturer 1 in School C addressed this issue innovatively in a lively discussion around the kinds of debates which should be taking place in the MBA classroom.   She had this to say :

> …..you are teaching them about themselves and who they are and ideally you would be empowering them to be more who they are and also educating them about what is a just society and what is a good society and what is it that we could do to be part and parcel of making that happen, and the diversity work, the emotional work is disinventing ourselves from the messages we have taken in about race or sexual orientation whatever and questioning that and looking at our assumptions and asking ourselves what do we see as data and the extent to which we get people excited about that kind of enquiry.   I feel like we are doing some good disturbance work in the classroom.

Day (2001) addresses this component of leadership development, to some degree with his claim that current leadership development methodology falls short of paying attention to the development of social capital in leaders.   This discourse which emanated through a number of the lecturer interviews suggests that the issue of the social role of the leader as discussed by French and Grey (1996) has been acknowledged by the faculty in the schools surveyed in this research.

Lecturer 3 in School C, refers to the financial scandals such as Enron and says that …..

> ….all of those things were people have just run amok….to me, I don't know whether they were MBA's or not, but I think it is a failure of how, at least American MBA's sometimes have defined business where the job of business is to maximize shareholder value, end of statement, but you don't worry about anything else and to maximize my own wealth….so I don't think that what we have taught is the idea of a leader who is also a steward of a company, or the people who work for them, of their society and that's not……because we have been very mechanistic…. It's like okay you will learn finance, you will become

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very good at it, you will learn marketing…..but we don't often ask the question, or we don't ask why do you want to do that….is that the right thing to be doing, what's the impact…..

Lecturer 3 in School D said that with the democratization of society, business has increasingly been called upon to display a socio-political accountability.   He argues:

> The two premier drivers of the political economy, government and business….are not talking enough.   It's a fine line between, you know, …influencing co-creation and nepotism, bribery and control, that I think that is one of the biggest, biggest challenges.

Lecturer 2 in School F acknowledged :

> So I think the critique of what business schools are teaching ethics is valid (commenting on the prevalence of a capitalist paradigm based on "greed is good" in many business schools around the world) but the answer to it isn't a course on ethics.   That might be a good thing to do but it is to be critical about what and where we are about.

This lecturer talked of times of social change, dislocation and so on and also believed that there were more opportunities today for leaders to have more impact.   Here he was referring to a social impact.

The social role of leaders and their needs to be responsive and responsible for issues that affect the community and the environment is clear in this theme as are the importance of ethical leadership and a focus on triple bottom line responsibility associated with corporate governance. Corporate governance legislation around the world asks for leaders to be accountable not only for financial results, but for the impact of the activities of the organization on its people and the environment.   Transdisciplinary learning, with it's focus on deep dialogue and meaningful interaction with all stakeholders will support the ability of leaders to grapple effectively with complex social dilemmas.

5.2.5   Interaction Between Faculty in Curriculum Development

The researcher encountered significant awareness around the need for faculty members in MBA programs to collaborate, and to develop a more interdisciplinary approach, to achieve more integration between the traditional MBA teaching silos such as marketing, leadership, decision science, economics, finance etc.   However, the need to engage in this way is often mitigated by time constraints.   Many lecturers have significantly heavy workloads that detract from their ability to make innovative changes in their style of tuition.   However, the need for more engagement between faculty is evident in the following selected comments made by the lecturers interviewed :

In School D the need to integrate faculty was a significant priority and much had been done in that direction.   Some felt it was useful and were very enthusiastic, others were less so.

Lecturer 3 in School D stated that :

> In the leadership component at our school, we bring all of the academics that are involved in that process, 7 or 8 of us, together with two critical support staff. We bring them together about once every 4 months to reflect on where it's at, to look at redirection, we ask the students to give open-ended written feedback about their experience of faculty members.   For next year we are going to introduce…..that a person who wants to serve on the faculty will have to put aside a two day workshop period, to participate with colleagues, but it's within the larger discipline of leadership, for us to share experiences, look at alignment etc. and, and if you are not willing to do that, it doesn't matter how good you are, you are not going to be a member of the faculty.

Lecturer 7 in this school, was a strong proponent of the interdisciplinary approach in the development of the MBA program, he stated :

> It's a total team effort.   I mean it's …..this cannot be done by one person, it's just impossible.   No, in the redesign of our MBA we had a committee….we have an Academic Planning Committee and they appointed a sub committee to look at the redesign….the sub committee in turn worked with champions in

different areas and the co-opted people in their particular area and the plans were developed by sub committees and up to a larger committee and then back to the Academic Planning Committee, so everybody has been involved in the redesign of the MBA. It cannot be done otherwise.

Lecturer 3 of School C, supported the interdisciplinary approach at her school and said :

Certainly for the day MBA, the course you saw….it was basically before we launched it, 8 years ago or something, we spent a year as a team developing the curriculum….,

and,

I ran what we called the liaison group which was representative from the teams of students and I still meet with a team to talk about the program…..

Some lecturers admitted that they did not interact much, but they were aware of the need to. A number mentioned time constraints as being a barrier to interdisciplinary learning.

Lecturer 3, in School E, noted earlier in this discourse that the need to break down discrete, disciplinary silos was a challenge of MBA tuition, and that he had attempted to address this by engaging, somewhat unsuccessfully with his colleagues. This was his experience :

I have tried to talk to other lecturers and say "How about we teach the same case from 2 or 3 different perspectives, but we sit in each other's classes and observe, so that we are getting really into some depth. It hasn't happened and it's probably just organic because of the time that we have available to us.

This same lecturer was concerned that by not engaging, they were creating more silos, rather than less. A colleague who had been in the business school for a much longer period, noted :

I have been around for a long time so there are 7 of us who have been teaching for years and over the years we have made sure that our syllabus's intertwine and fit in.

Although the above example does indicate that lecturers at this school do engage, the objective of the engagement appears to be more to ensure that their course content does not overlap too much, rather than to try to implement an interdisciplinary approach to learning.

Lecturer 2 at School E expressed enthusiasm about faculty engagement saying:

> I have founded that working with a colleague or colleagues is a huge way to learn, I have always enjoyed that. So we have people involved that get together and they brainstorm how they are going to work it out. So it's done on a pretty ad hoc basis but it is encouraged.

The interaction of faculty on MBA programs is thought to be of use as a foundation to interdisciplinary learning. The interaction currently happening in business schools does tend however to be more about ensuring that there is no overlap between modules and less to do with implementing true interdisciplinary learning. In the case of interdisciplinary learning faculty would co-operate in the classroom, with syndicate groups, in assisting them to work as interdisciplinary teams taking on real world problems, through the art of effective dialogue and problem resolution. There was no evidence in the curriculum documentation provided that suggested that lecturers from different disciplines had co-operated in the design of the curriculum.

5.2.6   Lecturers' responses to challenges in the classroom

It was interesting to note that the Dean of School C, although passionate, visionary and knowledgeable about the need to adopt an interdisciplinary approach in line with the needs of leadership andragogy in the postmodern context, very little of his passion and awareness was evident in the approach or perspectives of the lecturers in his school.

It is clear from this research that most of the lecturers interviewed had seen a need to make changes in the way they taught in MBA classrooms. The key trends relating to these changes are discussed here.

5.2.6.1 Action and Experiential Learning

There appears to be a move towards action and experiential learning, supported to a large extent by the use of case studies as action and experiential learning exercises for students and their syndicate groups. Class observations, supported by curriculum documentation, show evidence of these two learning methodologies being quite predominant. Class exercises and assignments requiring students to engage with case studies and to apply their learning to these, class activities such as role plays, making videos, doing presentations based on resolving problems in business, all reflect an experiential learning methodology. Action learning was evident to a lesser extent and examples of this were where students had to carry out negotiations and sell products in a retail centre. However, only one instance was encountered where the faculty attempted to design these syndicate groups activities along interdisciplinary lines. Lecturer 1 in School B had experimented with the Kolb Experiential Learning Cycle and emphasized the need for participation in learning. This lecturer, like many of his colleagues, relied strongly on the use of case studies to support his learning methodology. A lecturer in School C, Lecturer 4, demonstrated the trend towards action learning. This lecturer taught negotiating skills and said the following :

> I am constantly trying out approaches….you can see in some of my classes I actually have a mid term exam that they have to negotiate with me….and they actually enjoy it….so I will negotiate with two students and I will create the scenario.

A colleague in this school, teaching Entrepreneurial Thinking, as a module had also made similar changes in his approach :

> Yeah, my course looks a lot different today than it did a couple of years ago….I have been teaching it for five years…yeah and I started a new course last semester on launching your business where the kids actually have to launch a business in the class…and we are going to make major changes to that. Yes I try different things.

This is a typical example of an action learning approach, which seems to be a significant trend in the modification of MBA learning methodology.

In a discussion with the Head of the Leadership Hub in School A, he mentioned how he was using technology to empower the students to do their own learning, in line with the critical management theory paradigm. He uses blogs as an after class interaction between the students. In order to ensure that group members continue to contribute he uses a degree of peer assessment and inter-group assessment. This involves asking students what they learned from other individuals and what they learned from other groups. Another initiative under discussion in School C, was the multi-layered project, which is explained by Lecturer 1 as follows :

School C Lecturer 1 :

> We are considering an across year, like a multi-year project starting at undergraduate level, for each class that has some problem, relatively…..a big problem and they have to work it over time…..so it's problem centred/issue centred where you….the focus is not on using the lens of the discipline, the focus in one of solving the problem and applying whatever you can to solve it.

Lecturer 4 in the same school, had pondered on a possible response that related to structuring the MBA model to have more synergies with the medical training model. He said :

> I think that the model we have is not as it should be…the model that we have is that we prepare students academically for business careers and it seems to me that the model we ideally would have would be something similar to a medical model where there is academic preparation but then you are out there in the hospital, you are doing the rounds and you are applying the concepts. We don't do that as much….internships are about as close as you get, but if you have part time students, as I do in my MBA program…many of them will tell me that they take a particular concept that they read about or heard about in class and they will try it the next day…..so I think that the key is the scientific approach to management and business education with all the research, does not automatically translate well into what business is all about.

This approach addressed the lecturer's concerns about the need for students to be more immersed in the business world in order to integrate their learning with practical application. This concern was voiced by a number of lecturers in the research sample, and is commented on

elsewhere in this document. A related concern is the acceptance of MBA students at Business Schools who have very little, or no, prior exposure to business. Some lecturers found teaching students of this nature a significant challenge in terms of their inability to relate to the course content.

Linking into the above, Lecturer 2 at School F had some innovative thoughts. He stated :

> In my own teaching, I have gone….because you sort of get inducted into a process when you arrive, from thinking well I must give a lecture…to getting worried about that and thinking, I must facilitate a discussion to then getting worried that….. am I providing enough meat in this process, so the readings for example …….to trying to make sure that there is some insight offered, but in a way that is as much a discovery as possible on the students' part, shared creation of insight.

The last sentence in the above quotation, provides a glimpse of a move towards knowledge creation, a critical element of transdisciplinary learning.

Lecturers are clearly seeing and responding to the need to develop more meaningful learning methodologies in the MBA classroom. The main vehicles for these responses could be said to be falling in the category of either action or experiential learning. None reflected the more emancipatory notions of critical action learning as discussed in Chapter Two. The latter has strong synergies with transdisciplinarity but this methodology was not evident in class observations of lecturers' preferred learning methodology. Both of these traditional methodologies, that is action and experiential learning, add great value to the learning process, however, they do not and cannot replace the value of the transdisciplinary learning process. The latter provides the students with skills of complex problem solving, deliberation, reflection and ultimately more effective problem solving whereas action and experiential learning, as discussed in Chapter 2, have their purpose in assisting students to retain and apply knowledge learned in the classroom.

The romance that began decades ago when Harvard Business School introduced the case study method, appears to have waxed and waned and is now, in some instances, still very popular and in others, it is being used less. Generally it seems as if case studies are still popular although many lectures were experimenting with the form and application of case studies.

Lecturer 6, in School C, was somewhat less enchanted with case study learning methodology and said :

> 25 years ago when I started, the case method was pretty dominant, the Harvard case method, but today I only use a few cases.

This lecturer now favours a more theoretical approach to teaching students about Global Strategy.

He continued his argument as follows :

> I don't teach the traditional two hours of back and forth…..well there are two models of teaching, either ….. there is the Harvard case method which says that students will learn from each other, you will start a case and you will have a discussion and people will learn from each other and then there is the more old fashioned school of teaching, which is the one that I subscribe to that says the students' brains are bank accounts and it's my job to make deposits into their bank account. I don't have the patience or the time to draw the things out from everybody so that everybody learns from each other…. I try to teach a lot of material in the semester and more often than not, they don't have the answers and so for me, trying to draw them out of them, it takes too long, they just don't know, they just haven't been exposed to strategy and so they don't know but when you teach them they can learn it, so I do much more of a kind of lecture style and then I use cases to illustrate points and examples…. And I actually write a lot of cases, I have published more than 20 cases… I am a big case writer, very well known throughout the world and all the major strategy books use my cases. I can tell a good story but I actually don't subscribe to the case

method of teaching, even though I write all these cases. Yeah so I write cases but I have found that over time that it's just not as effective. I think Harvard's approach might have been good 20 or 30 years ago when the world was different but in the highly competitive global economy I am not so sure that that's really the best method anymore.

This commentary by this lecturer reveals the manner in which lecturer's have responded to challenges in the classroom, firstly relating to the amount of time that they have at their disposal to teach their course, which is usually not enough to do a good job, and also to the quality of the students. This bodes the question : why are students, who have no or very little business experience, admitted into MBA programs? Concerns about the quality of students was vociferously raised by Lecturer 1 in School D, who was struggling to teach a high level subject to people who had just left school.

Another lecturer in School E, Lecturer No 3, had innovated around case studies in the following manner :

You know traditionally we have used a very much case driven approach and I have broken that mould quite a lot in classes, depending on the particular subject. In some I find the discussion is better led from a more theoretical base, where I have brought in….and using probably more of a provocative approach where I put forward some ideas and then we have a discussion around it and then I will relate it back to the case afterwards, rather than using the case as the platform to hook onto. Another instance is where I have broken away from a single large detailed case which tends to be quite long…..I think the pace of things tends to be quite dictated by that, because you spend 2 hours unpacking a case. I have used, quite successfully, capsule cases as I call them, where I can explain the case in 10 seconds and we can have a good discussion around it for a few minutes and we can move onto the next quite quickly. It's a nice way of just changing the intensity of the class. And one final one just while it has come to mind is, start to…… and I haven't done this as successfully as I have seen it done, but I am sensitive to it and I think it's a good idea, is getting quite

controversial cases and getting the class to take contrary positions and facilitating an argument is quite neat.

This same lecturer had responded in other ways to the challenges in the MBA classroom. The following quotation illustrates how he has tried to incorporate the notion of complexity in his teaching approach :

> ..things are changing and we need to do things differently because our experience has shown…..specifically information systems, our experience has shown that our traditional methods aren't working very well, so I do a couple of things that…..I try to give more than one option, rather than give an answer. So I am very careful not to give a particular framework and say that is the way to approach something. I say "here is a way of thinking about it" and I will always try to position another one alongside it.

Lecturer 2 in School F had had the privilege of working with Harvard Business School and being exposed to a different and more enlightened way of working with case studies at that school. He said :

> We thought we knew the case study stuff and we suddenly discovered that they were doing case studies at a different level from what we were doing. It was a nice opportunity to think about and realize that there is more to it than meets the eye, it's not just going in and having a discussion, it's not using the case study….it's actually creating a situation….the stimulus situation….. which could be a case study, it could be anything else which the class shares, so the class members have a shared reference point to start from and discuss…..and then facilitating a discussion out of which learning emerges.

The above commentary on the responses to challenges in MBA classrooms, illustrates very clearly that the lecturers interviewed generally did have concerns about prevailing MBA tuition methodology and many had in fact taken up the initiative to experiment with better options. It is noted that the case study approach could be innovatively applied to a transdisciplinary approach to learning in that case studies reflecting complex postmodern problems, could be utilized to

stimulate a transdisciplinary dialogue. Student groups would however, need to be composed of inter-disciplinary representation in order to support the transdisciplinary process. It is important to note that for case studies to support the transdisciplinary process there should be no right answers and no past precedents to guide the problem solving process. Students should be encouraged to generate new knowledge and they should be freed from expected deliverables and the assessment of the case studies should reflect this freedom.

5.2.7   Time Limitations on the Program

The response of lecturers to the limited time they have with the students varied. It has been noted earlier that the researcher noted a tension around availability of time in the classroom observations. This was present is most of the classes observed.

School F, Lecturer 2's, discussion about the trade-off between applying good learning methodology, that is, giving the students time to immerse themselves in the content, to think critically about various perspectives and to explore is an important element of learning, but it is compromised by the trade-off between classroom time and covering sufficient content.

Lecturer 3 at School E noted the difficulties in achieved interaction and engagement with faculty in the delivery of interdisciplinary teaching, which was, he believed as a result of the limited time available with the students.

It has been noted previously that although it is not apparent that there are any links between the research question and the problem of the availability of time with students, it is relevant to consider how one would implement a transdisciplinary learning methodology within traditional time constraints, or alternatively, how to find creative solutions relating to the application of a transdisciplinary methodology within certain realistic time constraints.

5.3   Emerging Issues

The strong influence of the capitalistic philosophy and its predilection for rational, linear decision making models emerged as a fundamental barrier to transformation in business school learning methodology. The accreditation systems that business schools need to comply with often also reflect the elements of a capitalistic paradigm. The following is a discussion of the lecturers' feelings about this issue.

5.3.1   Capitalism

Capitalism was generally seen as positive by the lecturers and deans, however, the point was raised that greed is a distortion of capitalism and that this would destabilize the capitalistic system.   Greed is expressed by the relentless, short term pursuit of ever increasing returns and declining costs, without recourse to the negative long term implications of this type of strategy, and this has set the economy on a path of destruction.   The need to make short term decisions in a fast changing world meant that the kind of in-depth debates at the leadership level of organizations, political bodies and communities, required to make good decisions in response to complex problems, were not happening.

Lecturer 5 in School C, confirmed that notion of a distortion of capitalism being destructive. When asked whether he thought capitalism was a destructive system he responded by saying :

> No, not at all.   I think there is….where capitalism comes in is where the system comes into play….is where you have……financial markets are driven by fear and greed, right now we are in this fear phase….much like the dot.com meltdown and all the rest of it, where you get into this…well the flip side of that is greed.   And I think when the greed stuff comes in, whether it be the investors, whether it be….whatever, then I think it distorts capitalism….it distorts it.

Lecturer 3 in School D was less positive in his approach.   He stated :

> The "sage on the stage" input/exam/pass…engenders all of the values of an authoritarian top-down experiment model, hero leader value system.   …..an exploitative capitalistic system.   And we have seen what that has done for the world.

He went on to argue :

> Business schools reinforce the status quo.   So should they be an agent of change for a different way of thinking, for a postmodern, social market, responsible society?   Without a doubt!   Increasingly I am finding that the pedagogy is perhaps more important than the content.   But so there is a deep accountability

to say, we need to recognize MBA's have got a huge, positive contribution in the second half of the 20th century.....

In an enlightening moment during an interview in School A, the following discussion occurred between the researcher and Lecturer 2, which exposes the conflict between the capitalistic model in business schools and the ability to achieve an outcome in MBA graduates that is compatible with the needs of a postmodern society :

> Researcher :   So what I am hearing then is….in order to be profitable we need to provide what the student wants within some quality framework and something compliant in terms of accreditation, but we are aware that we should be doing things differently, but right now we are stuck in a paradigm where we can't.

> Lecturer 2 :   "Yes, I would agree with that.

This comment was supported by this lecturer's reflection on the reason that students come to the school to do an MBA….:

> I mean there is an objective for coming into the institution…to get out of it and no more; and the more certainty you provide them the fast and less complicated that process is going to be….part of that may be just that….they may be very well aware that the world is very unstructured but they may say…"I'm here for two years and I want my degree and I don't care about the world….just give me very structured exercises so I can get out of here.

This lecturer went on to discuss the element of elitism in the selection process of the MBA students.   She stated :

> we have spent so much time trying to eliminate the traditional class systems let's say in the English society, now we are creating an equal class system through different means….it's very exclusive.

> Researcher : So the people who eventually get into the MBA classes are already very privileged.

Lecturer :   "I would expect so …because I don't know how many really, really poor people from really, really poor families can get a credit of GBP30 000 or GBP20 000 per year…..I don't know who would be able to do that.

A colleague, Lecturer 1, supported her statements when discussing the manner in which MBA students are selected into the institution and how certain students are excluded. He said :

We rely on the GMAT score….the GMAT is a test with biases and prejudices in it…..we charge phenomenally high fees so that is very efficient way of excluding people…..we interview candidates so that's a third way of excluding people.   We are setting out to go up in the world rankings in MBA so we are setting out anxiously to exclude people.   We used to have 220 MBA students now we have 78 so we have to exclude a huge tail of people who are too young, too inexperienced, not hard enough working and so on.   We are looking for the cream that we can get….we can't get the same cream that Oxford Business School can get…..the best cream that we can for the category we are in.

The capitalistic notion of optimizing revenue in business schools was supported in the following comments of Lecturer 3 in School A:

Researcher : They (the students) are spending a lot of money, they are making an investment, they are looking for a good return on that investment?

Lecturer 3 : Yes, a positive net value product….that's what it is supposed to be….uhm and from our point of view we are partly measured on that because there is the dreaded MBA tables which the Financial Times publishes which we are measured on, that asks, what percentage increase did your MBA graduate get in the salary compared to what they had before.?

The statement of the above lecturer clearly confirms the importance that is attributed to the MBA ratings in business schools across the globe.   The criteria listed in these ratings are of paramount importance for their strategy.

The above comments from Lecturer 1 reveal a clear strategy in the business school of a primary focus on revenue generation. The operationalization of this strategy is unashamedly elitist and exclusionary. Nowhere in the discussion did this lecturer allude to a moral or social responsibility of the school to produce competent leaders in relation to the demands of the 21st century. They clearly want to give the students what they want, that is, an MBA, so that they can generate revenues from the fees charged.

Lecturer 2 at School A concluded by saying :

> You are right this business school is based completely on a capitalistic culture…

Another comment from Lecturer 3 in School A was revealing in the predominant orientation and value system of the school :

> I suspect, although I haven't done a survey on the political views of my
> colleagues, but I suspect that most of them subscribe to a type of commercial,
> market orientated philosophy and that's why we are in a business school…

This statement seems to suggest that a business school must of necessity be a capitalistic environment. Although this is an implicit assumption on the part of the lecturer, it was communicated as an "a priori" truism. There seemed to be little acknowledgement of the fact that the world may be changing. If this is the overall orientation of the school then change is unlikely to happen. Change will only occur after an awareness has been created of a need to change. This does not seem to be the case at School A.

This discussion between Lecturer 2 and the researcher reveals the predominant drive in business schools to please the students, so that they can achieve the required intake targets, and it seems to suggest that revenue generation is the main driver, not the need to produce effective, relevant and competent 21st century leaders.

Lecturer 1 in School F had strong criticisms of the capitalistic model and argued that :

> The major reason why you had the financial crisis that you had in America is
> because politically they believed that the markets would regulate themselves and
> Alan Greenspan said, I am not going to regulate you, you go and do whatever

you need to do…..unfettered greed is good.   Unfettered greed is not good and that is why we had the crisis and so it's a political, it's a philosophical….. and the economics of it was just a natural outcome of that…..

Her colleague, Lecturer 2 in School F was more pragmatic. He argued :

Most people teaching in a business school, whether they know it or not, are positivist and capitalistic and pretty pragmatic, which is good for business, but is not necessarily good for critical thinking.

This lecturer's next statement, revealed the tension experienced by his colleague Lecturer 1, in School F.   This lecturer, having strong Marxist leanings, appears to struggle against the imposition of the capitalistic paradigm in the school.   Her colleague supports this in the following statement :

If you had either a postmodern or a critical Marxist viewpoint say, which is not postmodern, I think going to the critical view and the postmodern view and the constructivist kind of philosophical position and non-capitalist and idealist….that person might have an interesting impact on the thinking of the school, but would likely be horribly decked in the classroom, because the students want to know how they can run their businesses better.   So we are probably set up for silo'd thinking, not just in terms of disciplines, but in terms of philosophy.,

This same lecturer later acknowledges a concern that is espoused in the following statement :

So I think we need to think carefully about what we are implicitly teaching our students which could be…..even in some American schools it's quite explicit….greed is good because that is the way the market works which is an unconsidered position.

Lecturer 2 above is clearly pragmatic in acknowledging the tensions around business and economic philosophy which are present in the classroom, whereas Lecturer 1, finds the lack of a holistic perspective something which she needs to continually challenge as it is in conflict with her own perspective on how business leaders should be developed and what methodologies they

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should be exposed to in order to make them effective. This condition reveals the different responses of lecturers to the challenges of business schools and the affiliation to certain philosophical, social, political and economic paradigms, some being aware and pragmatic about the need to accede to student demands and others continually doing battle with these tensions. The latter approach provide impetus for change.

An analysis of the themes emanating from Question 8 provides further support for business schools as influences on student mindsets particularly in terms of proffering and perpetuating a capitalist approach, whether overtly or covertly. More than a third of the lecturers interviewed were comfortable in admitting that their school exhibited an elitist approach. This was reflected in their intake systems which openly targeted only the best students they could get. Nearly half of the lecturers agreed that the school acts as a social agent in the manner in which it prescribes certain value systems, particularly those associated with a capitalistic paradigm, although only 15% were ready to openly admit to this capitalist influence. The capitalist approach is antithetical to transdisciplinary processes and thus this would present a barrier to the implementation of a transdisciplinary learning methodology in MBA classrooms.

It was clear from the discussions with the dean's of the schools that they operated from a capitalist paradigm. Strong themes of revenue generation were evident in their strategies. This was evidenced by, for example, elitist approaches in the selection of only the best students at very high fees. The pursuit of international accreditation in all the schools, as a priority, can be seen as evidence of a need to build up the brand of the school in the market, so as to attract the best students, supported by the best companies, resulting in maximization of revenues.

It is clear that many of the business schools in the sample unashamedly work from and promote a capitalist philosophy. The implications of this for effective leadership in a postmodern context, which has inherent within it some significant social and environmental challenges, need to be debated and responded to.

5.3.2   Rational Linear Models in the Postmodern Context

Transdisciplinary learning and problem solving is synonymous in nature with a complex, ambiguous context. Rational linear thinking has little in common with a transdisciplinary

approach which is more of a reflective exploration of issues rather than an attempt to reach an immediate solution through the application of economic models.

A clear example of rational linear models can be found in the traditional neo-classical economic models of prediction which were at the basis of the financial activities which underpinned the credit crisis in 2008/9. The researcher decided to ask the economics lecturer's interviewed whether they thought that these models were at the foundation of the credit crisis. Consensus on this point would provide further support for the value that a transdisciplinary approach to leadership development had to offer.

There was agreement amongst lecturers who addressed the issue of the current credit crisis, that generally one of the problems related to this, was the adoption of the rational, linear models of risk management, that had their basis in the assumption of perfect knowledge and that the economy would follow a set of basic laws that would result in equilibrium, was at the heart of the current crisis. The postmodern world is not characterized by the degree of predictability that these Newtonian models depend on. Lecturer 1 from School B, illustrates this point by acknowledging possible shortcomings of linear models :

> I think those (linear) models might be making rigid assumptions about the world….inflation rate is this..or whatever,

Lecturer 6 at School D said that he agreed that the limitations of linear models of decision making were responsible for the current credit crisis, but only up to a point. He stated :

> It was a considerable impact and that is a function of, almost what you are suggesting there….almost an obsession with wanting to quantify what I call a kind of spreadsheet approach which does not take into account, or very rarely takes into account, human behavior.

Lecturer 3 at School E argued :

> the idea that you can reduce something to a set of specifications, that you can reduce something to a set of instructions and thereby capture the full extent of the problem, is just wrong. And I really try….. I understand that, I think….I am sensitive to the fact that probably a lot, the majority of the class won't be faced

with that level of ambiguity and complexity. I don't think it applies across the board and the difficulty is that some people really get it and some people really take to it, while others want the neatly wrapped….as answers, and that creates maybe a bit of tension but I don't want to leave things neatly wrapped.

An Economics lecturer at School F stated emphatically :

I spend about an hour explaining to them (the students) that it is not a science, it is an art and you know, it's about human behavior and you can't understand human behavior by mathematical models.

Clearly these comments from lecturers and deans expose a lack of synergy in MBA learning methodology with the complexity of the postmodern context. Lecturers and deans have acknowledged this and part of their move towards incorporating interdisciplinary approaches to teaching, has been in response to a need to move away from the structured, predictable, linear nature of most current MBA teaching. The economists in the sample who were asked about the relationships between the preoccupation with linear financial decision making modules and the current economic crisis, were largely in agreement that these simplistic modules had some role to play in the destabilization of the economy.

These sentiments were reflected at management level at two of the schools, in the comments from the deans, who said :

Good business schools, when they teach linear models, teach the students and executives about the underlying assumptions of the model so that they can think critically about those models and realize……that they are all wrong, and they are all wrong in the sense that they all simplify a very, very complex world, but that's not even interesting, what's interesting is they are useful and it seems to me good business schools understand that they are only useful if the students appreciate the context within which those models have been developed, (Dean, School C).

…..the critique that I think is very valid is that we do not do very well in preparing our students for the risks of the market and the quantitative analysis

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that we do with them, although very rigorous is out of line with what is happening in the financial markets. We do not understand how complex the world is and how complex it has become, (Dean, School D).

At the heart of these emerging issues seems to be the notion that capitalism and its association with the linear decision making models of neo-classical economics is at the heart of the foundations of most business schools and certainly all the schools that were sampled in this research. Clearly this is an anathema to transdisciplinary principles and it has been shown to lack utility in the resolution of complex postmodern problems.

The current global financial crisis was used as a vehicle to illustrate the catastrophic results that can occur if we stick slavishly to paradigms of the past that are no longer useful in a complex and unpredictable world.

5.3.3. Barriers to Meaningful Change in MBA Tuition

One of the emerging issues from the interviews with the various lecturers in the schools in the sample, related to issues surrounding accreditation and its importance for the credibility of the school in the market. The issue of accreditation and whether a school is accredited, and with which international or national bodies, is one which significantly affects the financial sustainability of the school, in that prospective students view the accreditation record of the school as a very important factor in their choice of school. As will be seen from the discussion the accreditation criteria and process, often work against the ability of the school to make meaningful changes in learning methodology.

Lecturer 1, at School F, was particularly concerned about the limitations of the accreditation system on her ability to teach meaningful content in her module on micro-economics. When asked whether she thought rational, linear decision making models were at the basis of the credit crisis, she had this to say :

Oh I would absolutely agree with that. I mean, I think it is more complicated than that but certainly one of the things that is the most scary to me is that for accreditation for an MBA course in economics, you have to teach neo-classical economics which is this incredible linear, modular type of approach to understanding

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essentially human behavior which is neither linear nor does it fit beautifully into a gorgeous equation. It is a requirement for accreditation and not only do we not teach alternative schools of economic thought of which there are hundreds, but most of the time we don't even tell students that there are other schools of economic thought.

So I think that we do pre-program and I think that a lot of it is controlled by the fact that it's the American standards and it supports the American political economic view of capitalism and let the markets rule and small government and all that, through the IMF and the World Bank and all of their NGO work or whatever, they push, they push it through the accreditation system and we end up teaching the most conservative and the most linear of all economics and I think it certainly added to the idea that the financial crisis was an inevitability. But no, the accreditation process in Economics is criminal…….we teach them absolutely the wrong kind of economics. You know because I wanted to put in a whole bunch of neo-Marxian, and neo-Keynsian and structuralists, I wanted to put in interesting stuff and I didn't meet the requirements. The requirements are neo-classical economics 101 and the text books are terrible……you can read these micro-economic textbooks, they don't suggest that anything else exists. I mean it literally is criminal. It's like if you went to an undergraduate degree in psychology and they only taught you Freud and no-one ever mentioned Jung or cognitive-behavioural therapy whatever……you would think that that was the only way to analyse a……..that's what we do in Economics and it is, it is absolutely criminal.

The pre-occupation of accreditation systems with specific theoretical paradigms is of concern especially when you consider the statement made by Lecturer 4, in School F who says that :

I think some of the theories we have taught clearly were wrong, we can see in the credit crunch for example that we were applying business school thinking, some of that business school thinking was clearly wrong…. Not all of it but some of it.

He also noted that "it is very hard to change curriculum at universities".

In a very liberal stance, this lecturer actually suggested that MBA lecturers need to teach forgetfulness, he emphasized the importance of teaching students to learn and unlearn (concepts inherent in transdisciplinarity and especially in Wink's work relating to critical pedagogy, discussed in the literature review).

Lecturer 3 from School C describes the tension between the resources demanded by compliance with accreditation bodies and the need to spend time in debating innovative changes to the MBA tuition model. She says :

> I think of the hours we are spending on that (accreditation issues) and boy if we could spend those hours having conversations about how might we teach people to adapt to change or what are the changes that we are going to have to adapt to or those kinds of things….. my hunch is it would translate into much more effective preparation for those leaders, than figuring do they know how to figure a return on investment……

Lecturer 2 in School F had recently spent some time on a visit to one of the prestige business schools in America and he stated :

> Another thing I noticed when I was working in this business school was that when you are the market leaders, you have got to protect your brand very, very carefully. So there is a complete low risk tolerance. We would say 'oh let's try…. what do you mean by that, what if'….and so on. I learned a lot from them in terms of being careful, planning and so on, but my goodness it's a heavy weight to carry and so I much prefer our (South African) model of ready, fire, aim type!

The implication of this statement is that low risk behavior related to the protection of the market brand, results in a resistance to change which can negatively affect the school's ability to be innovative around changing MBA andragogy to be synergistic with the characteristics and demands of a postmodern context. The irony is that this very risk averse behavior may well eventually topple them from their leading positions as other less risk averse schools take up the challenge of designing and implementing innovative, postmodern andragogy.

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The manner in which transdisciplinarity focuses on the community approach, supports the espoused need for MBA teaching to move away from a capitalistic centricity to a methodology which is less individual, competitive and focused on the enrichment of a few to being more concerned with the welfare of groups, that is, communities, nations and society as a whole.

Lecturer 2 at school E raised a worrying concern about curriculum development when she said :

> ….my concern from a curriculum standpoint would be that we are not led by the right things. Sometimes we are led by what the students want…students have no idea what they need from a curriculum, they are not in a position to judge and being led by that I think there is a greater emphasis through our current academic process to give the students what they want….the customer is always right, well in educational institutions the customer has no idea, so we need to separate customer service, which is offering people information and getting them from point to point through registration and learning about what is available and making choices, to letting them influence the curriculum which I think is dangerous, especially given the very weak set of educational qualifications in terms of what you know, we have a majority of black South Africans who were shut out of the educational system and we are trying to make inroads in terms of skilling people up and getting them into the people and those people who have been disenfranchised and others, they shouldn't be the ones dictating to us what they are meant to learn….they have no idea. So this thrust from the academic office and its trend toward allowing the students to determine what it is they learn and also there is a bit of dumbing down of the curriculum.

This tendency to kowtow to the students demands even in terms of the curriculum content is testimony to the capitalistic influence on business schools, discussed elsewhere in this research. It is aligned with the need to draw students into the school at any cost, even if it significantly compromises the learning process. If this kind of thinking was to prevail or grow in business schools the outcome for the quality of graduates would be serious indeed. The nature of transdisciplinary learning is such that it does allow students the freedom of participating and contributing to the learning process in a new and creative way, however, this does not suggest that students are given the power to control the curriculum content, particularly if this leads to a

lowering of standards, as implied by this lecturer's comments. Transdisciplinary learning methodology, purely by its central purpose of addressing complexity in problem solving, will have the tendency to lift the intellectual demands on the student as it forces them to think independently and to embrace the complexity inherent in postmodern business challenges.

5.3.4   Do we Train Leaders in MBA Programs?

A surprise that emanated from the discussions with lecturers was that the question was raised as to whether an MBA does in fact develop leaders. The researcher made the initial assumption that the majority of people who embarked on an MBA would find themselves in positions of leadership, either prior to, or after graduation. However, there was no consensus in this regard amongst lecturers. There appeared to be a view in the perspective of some lecturers, that the MBA simply prepared students to deal with management issues on an operational or strategic level. Some lecturers saw this as the status quo and found it to be acceptable, and yet others, saw this as a weakness in the program.

Interestingly, a number of lecturers, 40% of the sample, questioned whether MBA classes were developing leaders. Their concerns were centred around the debate that leaders are born, not made. This seems somewhat ironic since the fact that there are business schools in existence in such large numbers, and that leadership development is a key element of MBA programs, suggests that this is based on the assumption that leadership can be taught, and thus leaders can be developed, otherwise why do we have business schools? Reflective of this sentiment were comments such as :

> …the question that is raised in my mind is the old chestnut of whether truly inspirational and successful business leaders are taught in MBA courses, or are born, (Lecturer 3, School A)

and,

> First of all I believe that you know, that's the question….do MBA programs develop leaders or do MBA programs identify leaders… We give out lots of MBA degrees but what we hope is that we get people who have some leadership experience, or want to become leaders, who come to an MBA program to

develop their natural sort of traits, so yeah probably for 20% of the people that we actually have in MBA programs will actually go out and be leaders and 80% of them will just come and get a degree, which I think actually doesn't develop leaders but it makes them better people, better workers, employees or whatever it may be ....., (Lecturer 6, School C.)

Lecturer 3, School C saw the lack of leadership development in an MBA curriculum as problematic.   She said :

We are shaping the next several generations and man….what could be a bigger responsibility or more exciting than that…..you know whether they become leaders with a capital "L" or just a small "l".   My feeling when I try to teach the students is you know, push comes to shove, depending on what context you are in, everybody is a leader.   It's not everyone can be a leader at the same time, but you know, we all have the times when we need to step up to the plate and lead and it may be being the president of the company or the country or it may be taking a stand on something in your community or it may be setting the example for your children and your friends' children…..I don't see what it…. But that's what education is all about.   You know we are not just educating people to be financial analysts, we are educating them to be people first, who happen to do financial analysis as part of their job and if we forget that I think we miss a huge opportunity…

This lecturer's colleagues, in the same school had a different perspective and they questioned whether they trained leaders in the MBA program.

Lecturer 2 in this school asked :

I don't know that we do…..educate leaders.   I am serious, I think that we are so focused on management processes….. I don't think there is one definition of a leader…. So I think depending upon how it is defined…..there are some who may be satisfied with what we are doing and others not.

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She followed this up by saying :

> Well Justin (a student) spoke to me today when he said that he liked what we did
> today because it was tangible and concrete ….in numbers…… that for me isn't
> necessary leadership because when I think leadership, I don't necessarily think
> order…in fact if anything I think chaos and I think a penchant for change as
> opposed to a need to hold something constant.

The above statement reveals a dichotomy between what students like to be taught and what they really need to be taught.   In many instances this tension caused problems for the lecturers.   Do they deliver what the student wants and thereby attract students to the school, or do they stand their ground and deliver what the students need in order to become effective leaders in a postmodern context. Interestingly this lecturer brought up the issue of whether leaders are born not made and referred to some recent research that ostensibly supported this in that it had found that there are similarities in the brain patterns of people who are considered to be outstanding leaders.   This she suggested, indicated that leadership capability might be in one's DNA and cannot necessarily be developed.   She did not make the link between the fact that she was in fact teaching on an MBA program which purports to develop leaders, in spite of her concerns that in fact leaders cannot be developed.   This lecturer does not necessarily emphatically believe that leaders cannot be developed but the question has certainly been raised in her mind. In spite of her misgivings it was evident in the learning methodology applied by this lecturer, that she gave a lot of attention to the development of leadership qualities in her students by implementing experiential experiences that required the students to interact with communities and to engage with postmodern leadership challenges such as working in a culturally diverse context as well as examining the value systems.

Further evidence of this perspective comes from Lecturer 5 in this school, wherein he voiced a concern about whether leadership is in fact teachable.   He said :

> I don't know if we teach leadership very well…..just generally speaking….and I
> am not terribly sure….I am caught between a rock and a hard place on this
> one….so in my own head I don't know what the answer is….I am not sure if
> leadership is teachable.   There are people who were born and from the moment,

they start taking charge of the maternity ward….and that's just the way they are and they are gonna be…you know you put them in a group and they are going to emerge or struggle, because there may be another one like them in there…struggle for leadership and directing the conversation or anything…I mean why is it that some people, you know they do half a dozen things in their life and business is one of them, but other things they do and suddenly they are the leader of this and the president of that….you know, it's somehow tied into I think the ….. gene pool, I guess, but it just strikes me that when I see that time and time again, you know it walks like a duck, quacks like a duck, sooner or later I'm going to call it a duck! There is a piece of that in me that says I am not sure it's teachable but with that said, I think it's good to expose people to teaching but teaching people to be leaders…..absolutely.

The courage of this lecturer is evident in the way he is comfortable to expose his own contradictory notions about leadership development in the MBA.   These kinds of contradictions have, as has been pointed out, been evident in a number of responses from lecturers relating to whether leaders can be developed and in fact whether they are developed on MBA programs.

The Organizational Behaviour lecturer in School E, Lecturer 2, was adamant that leaders are not necessarily developed on the MBA.   She said :

It is not necessarily an assumption we can make and I think there are certain reasons for that but one of them, when I look at School E's curriculum…there seems to be two gaps.   One is the way we approach the MBA….we replicate the firm…right, I am sure you have heard people say that.   And in replicating the firm, you have got the different pieces of the enterprise, of the business of the organization, but what you don't have is the critical thinking that is required of the decision making and leaders and you know, sort of part of that is values, and it is style and all those things, so I mean I think the critical thinking, which I think is done well as part of like a Liberal Arts degree…. It is not something that is filtered through in the MBA.   There is a lot of reservation and reticence around pushing the students to think critically and …. analytical skills…which is a connective tissue that is carried through the whole, entire curriculum.

She concluded her point by saying :

> So I don't think that we can be confident that we are producing leaders and I
> don't think that we can be confident that we are producing really, really effective
> managers and I am not sure that we have a group, collective sense of the
> difference between the two.   I think if we were aiming for leaders that would be
> an entirely different course and approach and one would really need to grapple
> with what that would entail.   I don't think that we can say we produce leaders or
> sculpt them, I think we can say that we offer a set of skills through the MBA
> curriculum.

If this lecturer's thoughts bear any truth it would be a severe indictment on the ability of the
MBA to produce effective leaders.   Transdisciplinary learning on the other hand, would
preclude a learning process that would deliver only a set of discrete skills.   The focus on
interdisciplinary integration, free and deep dialogue and debate and the creation of new
knowledge would support a learning process that is underpinned by creative and analytical
thinking which this lecturer believes is the one thing missing from the current MBA teaching at
her school.   In the section on Creative Thinking as a challenge in leadership development on
MBA's, it is seen that many other lecturers agree with her.

This analysis of the data collected in this research has important implications for the research
question.   These links to the research question are presented in the following chapter which
discusses the general conclusions and recommendations of this research.

5.4.   The Contribution to be made to Leadership Development by the Application of a Transdisciplinary Andragogy

It is clear from the above that transdisciplinary teams will have the ability to add value to a
leadership development process, and to address a number of the concerns raised by the lecturers
interviewed in this research.   The researcher also believes that the nature of transdisciplinarity,
particularly its radical stance and synchronicity with postmodernism allows it to be an excellent
platform for the resolution of complex, postmodern problems.   Traditional leadership
development methodologies such as experiential and action learning, and even interdisciplinary
processes, do not have the potential to move into this knowledge generating space.   It is clear

that new problems require new solutions and thus the need to transcend current knowledge is obvious. Meaningful communication, deep dialogue, and advanced relationship capability are crucial elements of a transdisciplinary process which would have to be taught to the participating students. These skills on their own are inherently valuable in the toolkit of effective leaders, however, the implications of these competencies for dealing with the postmodern challenges of diversity, creative thinking and knowledge creation are very apparent.

Two lecturers went as far as to say that transdisciplinary learning in leadership development would not only add value, but that it was a precondition. Lecturer 1 at School A, stated :

> Of course! I regard it as a precondition …of the learning management….management is way above all those individual disciplines underneath it.

Lecturer 3, of School D commented as follows :

> I wouldn't say it just has value to add, I would say that it has now become an absolute pre-requisite. Once of my clients, CEO of a top ten company and a gold medal MBA graduate himself, said that he doesn't employ a person who has got an MBA until they have worked elsewhere for 2 to 3 years. He says we find the people that come straight out of an MBA sit around waiting for a case study. So they look for simplistic solutions….high cause and effect stuff, so the interdisciplinary, transcendent space teaches people to make linkages between apparently non-connected points. The linkages between personal, interpersonal, organizational and society leadership….the differences in thinking that is required….all of that….so I would say it's a pre-requisite, otherwise I think the MBA's can almost do more harm than good from a leadership perspective.

Lecturer 3, School C :

> Oh yeah, absolutely!

This lecturer needed no convincing of the value of transdisciplinary learning, although her main concern was how to go about it. The application of a transdisciplinary learning process is

commented on elsewhere in a discussion on transdisciplinary process and suggestions are also made in the recommendations section of this document.

Clearly there is a need to unpack the concept of transdisciplinarity as part of the process of rising to the challenge of developing an implementation solution. Questions such as how would a transdisciplinary process look, how will we know when we are generating knowledge and how will we grade and evaluate this process……all questions raised by the lecturers interviewed and all questions requiring answers. Implementing a pilot project in a business school would represent an excellent opportunity to extend this research to the implementation phase.

Lecturer 3 at School C, gave an enlightened and animated report on how her team had attempted to recognise a transdisciplinary process :

> I think generating knowledge in transdisciplinary teams and situations is damn hard…and I don't think…I mean when I think about things that I hope I'll get better in teaching in terms of the teams context, is being able to identify some things, structures and processes that really help that happen…I mean, I have a lot of faith that if a team runs well it's more likely to happen than not but I think then there is probably a next level that we are not…we don't understand yet, kind of intellectually and I have a hard time knowing, we then know when it happens in a team but we don't know how we got there….when you really feel like you are generating knowledge…I think the problem is we may all recognize it because there is some feeling of 'Oh boy you know, things are really cooking, there is something….energy….a breakthrough' but what processes and structures let us get there still feel to me like pretty much a black box and it used to be before they started doing a lot of research on teams, you had effective teams, and what made them effective was kind of a black box (unknown)….well now I think we have kind of delineated, okay you have structures, you gotta have processes, what norms….you know even stuff as stupid as you gotta have an agenda…all that stuff…that's kind of known but I think the black box around how knowledge creation happens in a transdisciplinary situation and what structures and processes..that still feels like the black box to me.

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We were on a team, studying the teams you know, we had somebody whose big thing was emotional intelligence, somebody else who was knowledge management, another person who came more from project management, I come more from the kind of self reflecting teams thing, a data person…. and we were trying to study teams, we were looking at the tapes of our teams, the tapes that I had collected, trying to figure out well how are they, when do they create knowledge and what goes on when they are creating knowledge and it was like "Oh my God" and we couldn't even get our hands around it.

A colleague at the same school, Lecturer 4, was also optimistic about the value that a transdisciplinary learning approach would add to leadership development. He was clearly trying to incorporate elements of transdisciplinary learning in the constant amendments and upgrades he applied to his learning methodology. He said :

I would say that my course already has a lot of those dimensions (of transdisciplinarity) in it without necessarily being planned or based on that particular concept. And in fact I want students not only to generate their own knowledge, but to generate the improvement of their own skills in applying that knowledge to real situations that they are facing.

Another lecturer at this school, Lecturer 5, had this to say :

….absolutely the concept of transdisciplinary learning is a terrific one. Because again I think you gotta be able to think outside of what we know and accept as the norm today……it's a must.

An unfettered response from an enthusiastic economics lecturer, Lecturer 1, from School E had this to say :

Oh God absolutely!.....because it is what happens in the real world, so absolutely yes. I don't know how you do it but yes!.

Lecturer 1 in School F, had this to say when asked whether he thought a transdisciplinary learning methodology would add value to leadership development in the MBA program :

Without a shadow of a doubt……. I mean I wouldn't argue that one little bit. I think that ultimately to use one discipline to make decisions and in order to understand the context in which you are operating….you are just going to miss out on so much…

Apart from being positive about the principles of transdisciplinary learning in relation to MBA learning methodology, the above discussion points to some very real dilemmas that lecturers could experience in coming up with a process to support the application of transdisciplinary learning in MBA classrooms.   This research undertakes to attempt to provide information and insights that might help in achieving this.

The above analysis of the data collected in the lecturer interviews reveals that there is an awareness of a need to incorporate a more interdisciplinary approach in MBA classrooms. There is little awareness of transdisciplinarity however, when the concept was explained to lecturers they were generally enthusiastic about it and the value it could add to leadership development in the MBA classroom.   In particular they were appreciative of the knowledge generating aspect and the opportunities that it presented for encouraging and stimulating creative thinking in students.

The current problems experienced by lecturers in MBA classrooms have been discussed and the value that a transdisciplinary approach can add to resolving these dilemmas has been debated. Emerging themes that tended to influence the freedom of business schools to evolve to more enlightened forms of learning methodology were revealed as being the predominance of and proclivity for adherence to rational, linear, capitalistic thinking.   The rigidity of accreditation requirements also appears as a barrier to change.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

The aim of this chapter is to draw conclusions regarding the main research question, that is, the potential of a transdisciplinary andragogy to add value to leadership development in MBA programs in the postmodern context, and to offer recommendations, based on the research, as to how to apply transdisciplinary learning in a leadership development context, in MBA programs. The recommendations also include suggestions regarding theoretical paradigms and learning methodologies that would support this application as well as considering how transdisciplinary learning might contribute to dealing with some of the leadership development challenges raised by lecturers and deans, in the business schools visited.

6.1   Conclusions

This research questions whether there are problems with traditional methodologies in leadership development.   It particularly questions the lack of synergies between current learning methodology and the nature of the postmodern world.   Traditional learning methodology reflects a very structured, hierarchical, silo'd approach to learning, whilst the nature of the postmodern world shows no such symmetry, rather by contrast it is characterized by chaos, unpredictability and complex, messy problems.

The notion of transdisciplinary learning with its characteristic of a team as a knowledge generating unit, empowered to search out innovative solutions to messy, complex problems, seemed to the researcher, to be something that would bridge the gap between the structure and predictability of the business school classroom, and the environment or context, which the student would be plunged into on leaving the safety of that classroom.   It is in fact the thesis of this research that transdisciplinarity would go some way to bridging the gap between modernist andragogy currently the prevalent model in business schools, (Grey and French, 1996) and Boje's (1996) call for the compete rejection of any forms of control and restriction on students and teachers in the classrooms of business schools around the world.   The need for the

stimulation of student and teacher's critical thinking capability can only be accommodated by some relinquishing of controls to allow for the emergence of free, original and innovative problem solving.

Some lecturers alluded to the role of dialogue in learning and shared their concerns over the lack of good dialogue in MBA classrooms, this dialogue would be of the nature that would stimulate critical thinking and empower the students to come forward with their own thinking.   This would support the growth of confidence in the individual student, which is what Wink (2000) finds so valuable in critical pedagogy, a learning methodology with strong synergies with transdisciplinarity.   Thompson Klein (2004) in defining the transdisciplinary process, emphasizes the role of in dialogue in knowledge generation where she states that "rational knowledge emerges not only from what we know but how we communicate it".   This statement places dialogue at the centre of the transdisciplinary process. Further support for the critical role of communication in transdisciplinary processes is evident in the close correlation between the key elements of transdisciplinarity and Habermas's (1979/1981) communicative action model. The role of dialogue in transdisciplinarity has been discussed in the literature review of this thesis, but what needs to be noted here is that this is another area where transdisciplinary learning methodologies would address the concerns raised by some of the lecturers interviewed. A transdisciplinary andragogy would, of necessity, need to include some upfront training for students in the art of meaningful dialogue. This would support two other concerns of lecturers in MBA classes, namely the lack of critical thinking and also the problem of helping students to manage diversity.   Diverse transdisciplinary teams, engaged in meaningful dialogue around a postmodern problem, would not be able to make progress around problem resolution until they had resolved the barriers to communication and performance that are often posed by intercultural differences.

Some of the lecturers interviewed, particularly lecturers of elective rather than core courses, had the freedom to be creative around the evaluation and grading process. As is true in the world of the organization, what gets rewarded, gets attention.   In one particular instance a lecturer had approached his evaluation of his module in such a way so as to ensure that the students paid attention to the areas of the course that the lecturer felt were critical to their success.   For example, this lecturer held a quiz on the pre-reading work in every lecture and this was graded

and formed part of the final grade for the course.   As a result, no student came to class without having done the reading.   If you apply this principle to transdisciplinary teams, the teams would have to be rewarded for the key elements of the transdisciplinary process.   For example, their ability to criticize and challenge current theoretical paradigms and their ability to generate new and relevant knowledge in response to a complex, unprecedented problem, together with their written discourse that would support the integrity of such new knowledge, are elements that lecturers would need to evaluate and grade.   Another crucial element for evaluation would be the quality of dialogue in the group, given the central role that communication plays in the emergence of rational knowledge (Thompson Klein, 2004).

Day (2001) speaks of a concept of "organized complexity" which was identified in the literature review as being antithetical to the notion of postmodernism and its rejection of order and control. However this concept may find some use and application to the dilemmas of grading and evaluating the outputs of transdisciplinary teams, given the structure and order that this process requires.   Day's preoccupation with measurement and control mechanisms may provide some middle ground that would assist the transition to transdisciplinarity within the traditional academic space, characterized by a need for concrete measurement and outcomes.

In looking at the concerns raised by the lecturers who were interviewed, and in particular the concerns around linking disciplines and encouraging critical thinking, it would appear that the process of transdisciplinary learning has an excellent contribution to make to these concerns. The fact that a number of lecturers and colleges have acknowledged the need for the integration of the disciplines and the fact that they have already made tentative forays into the world of interdisciplinary learning, shows that they have acknowledged a need to do things differently. However, interdisciplinary learning is likely to fall short of their expectations in that it will not necessarily support critical thinking, nor will it provide a framework for knowledge generation. In this regard the comments of Horlick-Jones and Sime,(2004) spring to mind.   These authors state that although there is co-operation between disciplines in interdisciplinary processes, the discipline-based approach remains intact.   Interdisciplinarity therefore does not support the more radical approach to learning that frees the student to create new knowledge in respect to new and unprecedented problems typical of the postmodern era.

The move to transdisciplinary from interdisciplinary is a conscious one which will require some significant paradigmatic transformation and the ejection of some academic holy cows.

Transdisciplinarity requires that :

Lecturer's release the role of the expert and embrace a more egalitarian power dynamic in the classroom in order to empower learners to engage in unfettered, genuine knowledge production.

Lecturers are comfortable in the role of co-learner. However, in the process of grading and evaluation they would need to use their experience and expertise in their field to evaluate the quality of new knowledge generated in transdisciplinary teams.

Teams should be representative of disciplines. This was expressed as problematic by some of the lecturers, however some creative thinking around this issue may reveal that it is not impossible. One suggestion would be to place a transdisciplinary process towards the end of the MBA program once all students had been exposed to the different disciplines in class and then each individual could be asked to play the role of a specific discipline in a team and to make a contribution from that specific perspective. This would emulate the real world situation where leaders would be working in a management team which would reflect representivity from all organizational disciplines

The issue of compliance with the requirements of accreditation bodies would need to be addressed. The need for concrete measurement and outcomes that is normally associated with these bodies was seen by some of the lecturers as getting in the way of creative transformation in learning methodology.

Lecturers acknowledge that a simple move to interdisciplinarity and integration will fall quite far short of assisting students to grapple with the complexity of the postmodern leadership context.

Students are freed from the constraints of current theoretical models and are required to challenge, evaluate and re-examine extant theory in the light of its usefulness in application to messy, postmodern problems. They should be evaluated on their ability to do this and also to be able to relinquish or radically modify extant theory, or to build new theoretical concepts which are more relevant and useful in application to new, unprecedented problem situations.

Clearly the move to a transdisciplinary andragogy would necessitate that lecturers are exposed to extensive training on the principles inherent in a transdisciplinary learning methodology and to the relevant processes that would support the implementation of this kind of learning.

The results of the study indicate that there are essentially two high level themes that relate to the research question. Firstly, it seems possible to conclude that a transdisciplinary andragogy would add value to leadership development in business schools, in a postmodern context. The second theme relates to the problem of application of this type of andragogy. Suggestions in relation to this are detailed under the "recommendations" section in this chapter.

It is clear from the results that a transdisciplinary approach is not generally known, although there are isolated pockets of awareness. Inter-disciplinary learning is well known and was well received by most of the lecturers. However there is some lethargy evident in implementing the changes needed for an interdisciplinary approach to teaching and learning, which would be a necessary, although insufficient, foundation for a transdisciplinary approach. There is a need for lecturers to be open to relinquishing the traditional approaches such as action learning and experiential learning and to engage with a total change in learning paradigm which embraces a socially constructivistic approach. The problem of using more creative methods of learning in the so-called hard sciences that generally rely on a traditional lecturing style supported by the presentation format needs to be addressed. The application of a transdisciplinary approach to learning in leadership development, in MBA classrooms, will address a number of the challenges raised by the lecturers who were interviewed, in particular the lack of creative thinking and innovation in student outputs. There was clear indication from economists in the lecturer sample, supported by the deans, that the linear, neo-classical economic model which is slavishly taught in the business schools in the sample, has significant limitations within the complexity of the postmodern context and that a transdisciplinary approach would certainly extend current teaching and learning methodologies to more effectively embrace the complexity of the 21st century. The whole notion of transdisciplinarity also provides a foundation for a more socially orientated andragogy that embraces the complexity and unpredictability of the postmodern era.

6.2   Recommendations

These recommendations make suggestions regarding changes in learning andragogy that will support the implementation of a transdisciplinary learning methodology in an MBA classroom. They relate to broad learning methodological issues and do not presume to dictate a detailed curriculum, but merely to changes in the approach to teaching.

Although the concept of transdisciplinary learning was almost unanimously accepted by the lecturers interviewed, as being a learning paradigm that would add significant value to the teaching process in MBA classrooms, all but one or two had questions around the application of transdisciplinary learning.   Given the primary and secondary research outputs, recommendations centre around four key transformations to traditional MBA program andragogy.   These are:

- The teaching of meaningful dialogue, as a component of transdisciplinary learning, should be included as a foundation module in all MBA programs. Thereafter knowledge generating dialogue in interdisciplinary teams, that is, transdisciplinary teams, should be the framework for all group interactions.

- That lecturers are exposed to training in a transdisciplinary andragogy which would include both the theoretical principles and the practice thereof.

- The transformation of the business school value set from being predominantly capitalistic to a paradigm more compatible with various forms of socially based existential paradigms.

- The integration of disciplines should be evident in the curriculum and in the teaching methodology.

- The use of innovative learning methodologies to support transdisciplinary learning and teaching

Some of these recommendations are now discussed in more detail.

6.2.1   Dialogue and Knowledge Generating Transdisciplinary Groups

In its simplest form the transdisciplinary process is essentially a conversation. It is however, a very special kind of conversation. Its value is influenced by the nature of the conversation, the quality thereof, the synthesis of many inputs, the changing perspectives of the participants, the willingness of those involved to set aside their egos and their individualistic need to be right, in favour of the generation of a truth, however transient, that will provide resolution to a complex problem situation.   Is this not the work of a leader?   The type of dialogue needed in transdisciplinary leadership development however, involves a deep interrogation of complex issues.   In this respect the discourse provided by Bohm, Factor and Garrett (1991) is useful. They delineate the difference between superficial conversation described as discussion, and dialogue which is presented as an exhaustive and profound journey of discovery between concerned people in search of the truth in a context of complex problem solving.   This is compatible with the transdisciplinary approach.

The secondary research, discussed in Chapter Two, highlights the critical role of dialogue in transdisciplinarity, in critical management theory, in the social constructivist paradigm and in the creation of a radical postmodern andragogy for leadership development.   The researcher offers the models of Bohm, (1991) Scharmer (2001), and Gunnlaggson (2007) as possible theoretical paradigms on which to base the transfer of the skills of deep, meaningful dialogue, which would allow for the in-depth exploration of complex problems, in a transdisciplinary process.   The notion of reflection is fundamental to deep dialogue in these models and is a vital ingredient of any transdisciplinary process and in the resolution of complex, messy problems that have no precedent in the past. The notion of generative dialogue (Scharmer, ibid; Gunnlaugson, ibid), is compatible with the concept of knowledge generation in transdisciplinary process and thus is a particularly useful concept in the teaching of deep dialogue in a transdisciplinary context.

6.2.2. Existential and Theoretical Paradigms that would support a Transdisciplinary Learning
          Methodology

The teaching/learning methodology of the critical theorists with its focus on the problematization of knowledge and reflexivity evident in the work of French and Grey (1996); Grey, Knights and Willmott (1996) and Grey and Willmott, (2005) is a useful theoretical paradigm which can

underpin the application of transdisciplinarity in MBA teaching. As discussed in the literature review in this research there is strong synergy between what happens in transdisciplinary discussion groups and groupwork in critical pedagogy. In both entities groups are used to critically examine knowledge and its relevance. Both deviate from the traditional process of using groups merely to familiarize students with extant theory to a much more critical, explorative approach in which knowledge generation is central. Critical theory and social constructivism, existential paradigms compatible with transdisciplinary learning, are highly compatible with thinking within the postmodern paradigm and therefore these philosophies are appropriate in a postmodern business school environment, where leaders emerge and act in a complex postmodern world. Habermas (1979/1981), whose conditions for communicative action have strong synergies with transdisciplinarity, is a philosopher sympathetic to critical theory and social constructivism. His communicative action model was used as a basis for questioning lecturers in the sample, and would provide an appropriate platform for transforming teaching and learning methodology in MBA classrooms. The concept of autopoiesis proffered by the Chilean scientists Maturana and Varela (1980) should be examined in terms of its usefulness as a foundation for determining process in transdisciplinary interactions. Wink's (2000) critical pedagogy offers suggestions for transformation in classroom learning and teaching methodology that would enhance the transdisciplinary process. Her notion of "learning", "unlearning" and "relearning" are useful concepts to apply to a transdisciplinary learning process.

The importance of reflexivity in emancipatory learning methodologies compatible with transdisciplinarity is noted (Mezirow, 1981; Revans, 1983; Kolb, 1984; Reynolds, 1998; Cavannaugh and Prasad, 1996 and Freire, 2006) and this concept is one which should be incorporated into any transdisciplinary methodology. Chia and Holt's (2008) concepts of phronesis and metis are useful tools for the design of a transdisciplinary process. Antonacopoulou's (2010) discussions around the notion of phronesis, incorporating reflexive critique are of significant importance in the development of an emancipator learning methodology in the context of the MBA program. The synergies with transdisciplinarity have been established in Chapter Two of this report.

The need for transformation in the traditional paradigms of thought inherent in the business schools visited, is evident in lecturers revelations about structural issues relating to the manner in which academic institutions operate. These refer to, amongst others, the demands made by the various accreditation bodies which place limits on how the MBA andragogy can evolve into something that will support efficacy in leaders operating in a complex and unpredictable postmodern world. The formal requirements alluded to here mitigate against the implementation of transdisciplinary learning. In order to bring about change, it is clear that external stakeholders such as these would need to be included in the dialogue that would support transformation. Accreditation systems would need to release their paradigm of control and restriction and transfer power to the universities to develop meaningful and creative curriculum that would support the development of successful postmodern leaders. Their accreditation systems would need to embrace and reward things like equalized power dynamics in classrooms, mutual learning between students and the lecturers and processes which support the generation of new knowledge. Accreditation systems would need to move from a control paradigm to one which focuses on evaluating the outcomes of curriculum process, for example, the quality of leaders in business and the value they add to their organizations.

The tension between the strong themes of capitalism which currently appear to be entrenched in business schools, and the need for a more socially responsible form of leadership need to be examined and resolved. This requires business to acknowledge the need for transformation towards a more socially responsible business philosophy that takes into account the triple bottom line, that is, concern for people and the environment, as well as for business results.

Business schools will need to relinquish the capitalistic hold inherent within their value systems and their strategy and make way for these new paradigms of thought, which will transport them in a sustainable way into the postmodern era. The critical theorists, discussed in Chapter 2 of this thesis, have interesting input around alternatives to the capitalist economic paradigm. The linear decision making models associated with neo-classical economics, and the capitalistic notion, will have to give way to socially constructed dialogue based problem solving entities, embracing all disciplines, as mechanisms for solving complex postmodern problems. Doing this will make business schools, that is academia, the source of transformation, which is as it should be. Academia should be the source of new knowledge generation and the catalyst for

transformation in society. At present it would appear that the academic world suffers from the same lethargy in regard to transformation as does its customer base in the business world. Academia can and should, lead business transformation by developing leaders who are effective in operating in a complex, postmodern environment.

The recommendations from Schoemaker's (2008) research and the questions asked by Coetzee (2009) relating to a new world order, are also very useful foundations for developing a leadership curriculum that is compatible with the postmodern context. Schoemaker's recommendations have strong compatibility with a transdisciplinary approach.

6.2.3 Interdisciplinarity in faculty and curriculum

This research has provided evidence of the fact that many of the lecturers and deans are aware of the need for integration of the disciplines in teaching on MBA programs. However, there were no significant examples where this notion has been deeply embedded in teaching methodologies or curriculum. For pervasive integration to take place this concept would have to be entrenched in the philosophy of the school, supported by management strategy, and operationalized into all aspects of teaching in the school. For transdisciplinarity to be incorporated, paradigms of thought regarding teaching and learning would need to be transformed to incorporate a freer, more open learning paradigm which would allow for knowledge generation, and not the regurgitation of extant theory. This has been discussed in more detail above in 6.2.2. Notable was an apparent dichotomy in thinking, in some instances, between the deans and management of schools and the application of teaching and learning in the classrooms. There were some extremely enlightened deans and lecturers occupying management positions, who spoke passionately of interdisciplinary learning, however, when talking to the lecturers associated with these management representatives, it did not appear that their thinking had trickled down into the daily happenings in classrooms.

6.2.4 Innovations in learning technology

The researcher wishes to highlight the work of Dr David Jonassen and his colleagues in the field of learning technology which illustrates what is possible with innovation in learning methodologies. Dr Jonassen's work has important implications for the implementation of transdisciplinary learning through the use of online technology. These on-line technologies are

able to be modified for classroom application. The on-line facility has advantages in that it extends the learning methodology across a greater number of students, it can include distance learners as well as those who attend classes. This has the advantage of providing a larger population of students who can be allocated into inter-disciplinary groups for the application of transdisciplinary learning. One of the challenges of setting up interdisciplinary groups, is generally the availability of all the disciplines in a small group of class-based students. A larger group of students would make it expedient for as many disciplines as possible to be represented in the student syndicate groups.

What is notable about the work of Jonassen is that he is a constructivist. We have noted that constructivism and particularly social constructivism, is highly compatible with the postmodern domain and we have also established synergies between this paradigm of thought and transdisciplinarity. In learning constructivism aims to :

> Rather than attempting to map the structure of an external reality onto learners,
> constructivists recommend that we help them to construct their own meaningful
> and conceptually functional representations of the external world.

> (Jonassen, 1991a, p.11)

Constructivist learning theory supports the notion of knowledge generation, the core element of transdisciplinarity. This is clear in the phrase "construct their own meaningful and conceptually functional representations" in the quotation above. This implies that problem-solving is not rule bound or linear, but that it is an open approach which allows for the participants to construct solutions relevant to their particular context. Jonassen (1991a, p.7) confirms this constructivist, contextual nature of problem solving in the following quotation :

> If our learning theory assumes that we construct meaning for objects and events
> by interpreting our perceptions of them in terms of our past experiences, beliefs,
> and biases, then each of us mentally represents our own personal reality. Each
> reality is somewhat different, because each person's experiences and resulting
> apperceptions are different. These differences in interpretation are proof, ipso
> facto, of the individual, constructed nature of reality.

If we add meaningful dialogue to the mix, in interdisciplinary teams, you have the foundation for transdisciplinary learning and problem solving. This notion of dialogue extends the constructivist paradigm into the social domain which is compatible with transdisciplinary learning.

Another particularly salient aspect of Jonassen's work is that he engages with problem solving at the complex level. He has, for example, worked with learning methodologies in the medical field, which entails fairly ill-structured problem solving. The problem solving context is complex in that there are numerous alternatives that could support an appropriate diagnoses. The problem becomes complex because of the lack of structure and the multiple treatment options, patients subjective needs and desires, insurance issues, etc. (Jonassen and Hung, 2008, p.7) This again makes this methodology useful for application to complex problem solving such as it encountered in the postmodern context. The concept of cognitive flexibility is one which has compatibility with complex problem solving and transdisciplinary learning. It is an andragogy that facilitates engagement with complexity by avoiding the traditional problem solving processes which aim for objectivity and the simplification of knowledge. Cognitive flexibility engages with multiple perspectives, and conceptual relatedness (Jonassen, 1991a, p.11) which is the core of a transdisciplinarity andragogy.

Jonassen (1991b) discusses the advantages of hypertext in the application of innovative postmodern learning technology. Hypertext systems utilize four main systems, that is, browsing systems, problem exploration tools, macro-literary systems and general-purpose hypertext (Conklin, 1987). These methodologies together can provide the student with access to extant knowledge, support problem exploration and consultation with other students. The nature of the learning methodology is compatible with transdisciplinary learning, particularly the knowledge generation aspect thereof, as is evident in the following quotation :

> A learner's interactions with hypertext are not predictable, while most instructional design and development models stress the predictability of learner outcomes from instructional interactions. User interactions with hypertext systems are less deterministic than those resulting from traditional instructional designs and design models, because they are not based upon convergent, objective-referenced purposes. They are minimally intervening and are

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predicated upon cognitive activity instead of the behavioral outcomes that drive instructional design processes.

<div align="center">(Jonassen, 1991, p.85)</div>

Thus the work of Jonassen is highly relevant to this study and will provide a useful platform for the transformation of traditional MBA andragogy to one which is more compatible with transdisciplinarity and the postmodern context. Whilst it is not the purpose of this research to design transdisciplinary methodologies for application in MBA andragogy, it is clear that the work of Jonassen will be very useful in doing so.

It is noted that some of the schools visited were already utilizing on-line technology in learning and this was evidenced in the use of "blackboards" where students could access course material, submit assignments or contact lecturers. The use of blogs for after class discussions was evident in School A and this technology is likely to be used more widely in future as lecturers recognize the value in exploiting this type of technology. The work of Jonassen however, takes on-line learning technology to a new level and is very compatible with a transdisciplinary approach.

6.2.5. Peripheral Issues Relating to the Challenges Currently Experienced in Leadership Development in the Schools Visited

The research indicates that peripheral issues relating to this research, in particular the concerns voiced by lecturers about the lack of critical thinking in students, will be addressed by the implementation of a transdisciplinary learning andragogy. The components of deep dialogue, reflection and the need to generate new knowledge will necessitate going beyond the bounds of traditional classroom learning and engaging with others in critical and innovative thinking. The use of interdisciplinary syndicate groups and deep dialogue will also support innovation in thinking. The need for integration of the disciplines identified as a theme in some lecturer responses will certainly be addressed in a transdisciplinary approach to learning and teaching. The incorporation of deep dialogue, the embracing of complex problem solving and knowledge generation will support the development of socially conscious leaders and take the learning process way beyond the mere acquisition of skills.

A possible problem in the application of transdisciplinary learning could be the manner in which it might extend student study time and perhaps classroom time. However, there are potential solutions to this problem, one of which is the optimization of technology in allowing students to engage in group work online, outside of the classroom.

Given the foregoing analysis of the development of postmodern leaders, I believe that learning methodologies like transdisciplinarity will be part of the development of a new learning paradigm at business schools. Transdisciplinarity is a paradigm that will find its place within the heart of critical management theory, that is social in nature, that focuses on dialogue and teaches students through a process of engagement how to interact and discuss complex issues at a meaningful level of discourse. It is thus very appropriate for leadership development in the postmodern context as is supported in the results of this research. The nature of the engagement between participants will embrace conflict and difference and enable growth in understanding between people engaged in solving complex postmodern problems. Relational skills, particularly dialogue, will be the thread that enables these meaningful interactions and critical and innovative thinking will emerge within the freedom of the discourse and the process of constructing a relevant and useful leadership paradigm for the 21st century.

6.3   Recommendations for Future Research

In considering the possibilities for future research, the following are offered as a point of departure.

6.2.1   The development of well researched tools and technologies to support the implementation of a transdisciplinary andragogy.

6.2.2   The design of a training program for lecturers in the theory and application of a transdisciplinary andragogy.

6.2.3   An enquiry as to what extent accreditation systems and other forms of academic controls, restrict the application of a transdisciplinary andragogy and how to address these.

6.2.4   Researching student responses to the implementation of a transdisciplinary andragogy.

6.2.5   Researching the business response to transdisciplinary andragogy.

6.2.6   Further research relating to application of autopoiesis in the context of living systems and the validity of utilizing the related concepts of internalization, externalization and objectification in determining a theoretically sound process for transdisciplinarity.

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ANNEXURE A

INTERVIEW GUIDE FORM   **DATE :**
…………………………

Phd Studies : E M Saunders, Unisa

BUSINESS SCHOOL :   _____

NAME OF LECTURER :   _____

SUBJECT :   _____

PROGRAM :   _____

I hereby give permission for this lecture to be tape recorded.

……………………………………..   **……………………………………..**

NAME OF LECTURER   **SIGNATURE**

This is an open-ended, unstructured interview and the questions below will serve as a framework for guiding the interview towards the research objectives.

Question 1

Are you familiar with the concept of interdisciplinary learning, or interdisciplinary problem solving?

YES/NO (If no, the researcher will explain the concepts as defined in this research)

Question 2

Are you aware of the concept of transdisciplinarity and how it is distinguished from multi/cross/interdisciplinarity

(If not, researcher to clarify)

Questions 3

Do you have any concerns about the way we teach/educate/develop leaders today.   If so what are these concerns?

Questions 4 :

What assumptions are made about students and the problems they will face in leadership positions in the 21st Century?

Question 5

Have you tried new approaches in the classroom.   If so, what and why?

Question 6

To what extent do you engage with other academic in the development of programs?   What is the nature of that interaction?

Question 7

Do you think that the concept of 'transdisciplinarity' has value to add in terms of a learning methodology for leadership development in a postmodern world (research to explain the concept of postmodernism in terms of tis study).

Question 8:

Universities, and more specifically in this research, Business Schools, can be seen as 'social agents' in that they determine who gets access to leadership development and what kind of experience they will be exposed to.   The underlying values espoused in the curriculum, the teachers personal perspectives and the culture of the school will undoubtedly influence the students mindset, and perhaps even engender philosophical conflicts.   Can you comment on this statement?

RESEARCHER'S COMMENTS :

ANNEXURE B

Interview with the Dean   **DATE :**
……………………………

Phd Studies : E M Saunders, Unisa

BUSINESS SCHOOL : _____

NAME OF DEAN : _____

PROGRAM : _____

I hereby give permission for this lecture to be tape recorded.

……………………………………..   **……………………………………..**

NAME OF DEAN   **SIGNATURE**

Please can you elaborate on how the management structures of your Business School support the learning paradigm, mission, vision and values of the school

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ANNEXURE C

Td OBSERVATION FORM DATE :

……………………

Phd Studies : E M Saunders, Unisa

BUSINESS SCHOOL : _____

NAME OF LECTURER : _____

SUBJECT : _____

PROGRAM : _____

Observer to be on the lookout for the following :

Characteristics of Td	No of Observations See Below for Descriptions of Behavioural Indicators
Empowered learners 1: (Code EL1) Teacher encourages and discusses new knowledge which may emerge from group processes that may not fit with current theoretical models, but which provides an acceptable solution	
Empowered learners 2: (Code EL2) Mutual learning between teacher and students; equalized power dynamics between teacher and taught	
Learning methodology 1: (Code LM1) Lectures, group discussions, assignments, business projects, case studies designed to include analyses from the perspective of different disciplines	
Learning methodology 2: (Code LM2) Lectures, group discussions, assignments, business projects, case studies designed to allow for the analysis of complex, real-world problems.	
Structure of groups: (Code GS)	

Syndicate groups structured to be representative of different disciplinary perspectives	
Complex, real-world problems: (Code CRP) Students allowed to generate their own real-world problems.	
Knowledge Production: (Code KP) Students are given the freedom in group work to come up with new knowledge, i.e. outcomes of group processes are not constrained or limited by current knowledge.	
Td process: (Code Td) Td process is explained to students	
Meaningful communication : (Code MC) Guidance is given in terms of how to engage in meaningful 'deep' dialogue.	
Habermas Conditions for Td No 1: (Code H1) Freedom to enter a discourse, check questionable claims, evaluate explanation and justifications	
Habermas Conditions for Td No 2 : (Code H2) Freedom to modify a given conceptual framework and alter norms;	
Habermas Conditions for Td No 3 : (Code H3) Mutual understanding between participants	
Habermas Conditions for Td No 4 : (Code H4) Equal opportunity for dialogue that abides by the validity claims of truth, legitimacy, sincerity and comprehensibility, and recognises the legitimacy of each subject to	

participate in the dialogue as an autonomous and equal partner	
Habermas Conditions for Td No 5 : (Code H5) Equal opportunity for discussion, and the achieved-negotiated-consensus resulting from discussion deriving from the force of the better argument alone, and not from the positional power of the participants	
Habermas Conditions for Td No 6 : (Code H6) Exclusion of all motives except for the cooperative search for truth.	
Group Formation (GP) Groups formed according to interdisciplinary principals	

RESEARCHER'S COMMENTS :

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