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Chapter 1 Introduction and background to the study

1.1 Brief overview of the study

The aim of this theoretical study is to construct a meta-theoretical framework for the field of dynamic assessment, as this field is currently experiencing some tension regarding fundamental aspects surrounding theory and practice. The means by which this will be achieved will be based on critical analyses and evaluations of various theories and models developed within the field. In order to develop such an envisaged meta-theory,[1] the historical significance of various trends, models and theories will be assessed in terms of their respective contributions to the current status of dynamic assessment within the broader context of intelligence research.

Dynamic assessment is a manner of assessing individuals in a fluid, process-orientated and flexible way and has much to offer the field of intellectual assessment due to its unique stance on measurement. The origins of dynamic assessment are situated in areas of research in which practitioners were originally given mandates to assess prospective learners within specific cultural contexts. Concepts, ideals and notions associated with this type of assessment were often translated into quantifiable measurements in order to satisfy the reigning paradigm of testing. More often than not, dynamic assessment ideals did not filter through to later editions and modifications of tests and the goal of many early intelligence tests was to categorise individuals based on their performance within the testing situation. Partly owing to industrialisation and expansion, testing of groups of individuals was deemed a more expedient alternative to assessing on an individual basis, thus allowing for more people to be tested within a shorter time span.

Unfair discrimination and biased use of many intelligence tests gradually led to the growing dissatisfaction with these static and product-bound instruments and in an attempt to find a suitable form of assessment, dynamic assessment has offered partial solutions to the problem-riddled field of intelligence assessment. However, “partial solutions” is perhaps currently the most apt description of the status of this field and what it can presently offer. The beginnings of dynamic assessment are widely spread in terms of geographic origins, disparate in terms of initial reasons as to its use and culturally diverse in the contexts within which it works. How has the origin and development of dynamic assessment compared to mainstream intelligence research in terms of theoretical contribution, practical enhancement of current tests, reduction of bias and generalisability? Does the field of dynamic assessment lack a coherent and sound theoretical base? As with most theories within the realm of science, as it is practised both within the social and natural milieus, tenuous foundations and fuzzy concepts hamper the progression of ideas and theories. What is the theory and framework behind dynamic assessment? Ironically, one aspect of dynamic assessment research for which consensus has indeed been reached is that there is as yet no one particular framework in which this form of assessment can be adequately housed.

Multifarious as the field of dynamic assessment may at first glance appear, it may be possible to connect various trends and researchers within this field by investigating the underlying historical influences, basic premises upon which theories are based and contemporaneous personalities within intelligence assessment. In attempting to link, compare and integrate various dynamic assessment trends, a more in-depth understanding of what dynamic assessment is, how it came to be and the nature of its future course of progression can be sought. Seeking coherence and consistency in a field as disparate as dynamic assessment may well prove fruitful in its future endeavours in the intelligence arena and its subsequent acceptance into larger academic circles within psychology.

1.2 Motivation and rationale

In order to advance within the field of dynamic assessment (in terms of this form of psychology being more generally accepted), basic issues have to be readdressed. Many of these fundamental issues are considered as accepted, established and standard sub-areas within the discipline, some such areas being measurement as well as Western ideas and notions of what it is to study psychology and conduct psychological assessment. The very notion of what it means to measure is confounded by institutionalised acceptance of what is considered measurable and what is not. Of course, it is not only dynamic assessment which labours against these notions, but also traditionally accepted forms of assessment which, without critical thought for the philosophy of measurement, have taken ever greater strides in theory and model development without first having addressed basic issues. If fundamental and core issues can at least be addressed then perhaps a sounder footing can be established in which all forms of assessment can take root, in particular, dynamic assessment. This study attempts to disentangle current preoccupations with certain issues in the field and to objectify, explore and more fully understand why it is that this field is experiencing problems in terms of greater acceptance within the broader assessment profession. The statement by T.J.

[1] “Meta-theory” and “metatheory” are used interchangeably throughout the literature, although the majority of writers utilise the latter spelling.

Watson's words "first look backward in order to look forward" (in Williams, 1997) is a sentiment which is upheld throughout this study.

Overarching, all-encompassing, fully inclusive, bridged meta-theories may be pie in the sky in terms of the veracity of such models (and what they purport to lend to the ever-burgeoning field of assessment) and what in fact can be practically offered by such models to the general practitioner within psychological assessment. Fragmented data,[2] seemingly incompatible foundations, blurred epistemological axioms, cross-pollinated methodological measures, the growing magnitude of perceived novel contributions, the increasing morass of incoherent theories and lack of containment within just one field of psychology, namely intelligence assessment, seems to overpower the individual researcher and practitioner to the extent that as long as assessment can deliver the ''goods'' within the ambit of moral and ethical codes, a practice can survive long enough to benefit those who assume that the field is well entrenched in consistency and stability. Perhaps it is just as well that those who seek to benefit from assessment remain blissful in their ignorance of what in fact emanates from within the perceived "ever-progressing" encampment of solid psychological science. In order to shed some much-needed light and to perhaps aid in the retention of such a perceived situation within psychological intelligence assessment a study such as this, it is hoped, may prod the more sensitive among researchers and practitioners in a direction which may hold the fruits of a venture yet to begin.

1.3 Research orientation

Although not intended as a philosophical treatise on dynamic assessment, the philosophical imperatives according to which studies such as this are conducted should be delineated at the outset. The "lens" through which literature is read, understood and integrated within a greater context of understanding, influences (albeit to a limited extent) the manner in which information is comprehended. As should be mentioned at the start of this discourse, the author in no way purports to be a philosopher and being mindful of the expansive literature and history concerned with philosophy regrets the simplicity with which certain basic philosophical issues are discussed and addressed as pertains to dynamic assessment and the greater purview of intelligence research. The specific philosophical stances will be discussed and expanded upon later in Chapter 3.

At this juncture it may be prudent to expand somewhat on the intended stance or view from which the literary landscape will be surveyed. The author has leaned very heavily on the concepts, ideas and models used within the works of one K.B. Madsen of Danish origin who himself has been influenced by a host of Scandinavian researchers (1968) and who, among others, co-founded the fundamentals of a theoretically attuned psychology (Baker, Hyland, Rappard & Staats, 1987). He was most notably influenced by Sigmund Koch who pioneered comparative studies of scientific theories within psychology (Koch, 1959; Madsen, 1987). It seems almost fitting that the foundations upon which this study rests emanate from geographically and philosophically disparate areas, much akin to the very disparities which make up the history and progression of dynamic assessment. Mainstream psychological theory and practice (if such a notion in fact exists) offers much by way of origins and development but it is noteworthy that Western ways of practicing what is considered a psychology has helped fuel the coalescence of non-Western practises. Grandiose models and schemas that encompass what may seem to be almost everything will never quite see the light of day - reality in all its complexities simply will not facilitate such visionary philosophical ponderings. However, much in the same vein as Joseph Royce (1973; 1987), perhaps it is more felicitous to build "minitheories" or microtheories (Brand, 1997) which represents a tentative start to a life-long endeavour (which incidentally occupied a considerable amount of Madsen's professional career).[3] Madsen's methodology and choice of locating theory within the grander culmination of multitudinous strata offers a guide towards systematising the overflowing outpouring of data and method. That this type of theorising is not to everyone's liking is an unavoidable fact of life within academic research and no excuse is made or proffered in terms of warranting receipt of sympathy that might be elicited upon such an apology. The method is unashamedly grandiose. The conclusions are open to controversy at worst and debate at best.

1.4 Delineation and discussion of chapters to follow

The nature of this theoretical discussion warrants an extensive overview of the history, development, status and future of intelligence research and more specifically dynamic assessment. In order to accomplish this task a critical and evaluative rendering of texts is of prime importance. *This chapter* serves as basic introduction to the study that is to follow. *Chapter 2* discusses the research method involved as well as the fundamental philosophical affiliations from which this study can be viewed. It includes a discussion on dynamic assessment fundamentals as well as dynamic assessment history along with a detour into the reigning Soviet ideology and how this played into the works and theories of Lev Vygotsky and concludes with a brief look at intelligence assessment. *Chapter 3* entreats the reader to carefully study the philosophical underpinnings of

[2] On many an occasion it has been lamented that the addition of yet more data to a field already bursting at the seams is often construed as data gathering at the expense of pursuing theory, data being construed as a means towards an end; a state of affairs which could do with some measure of synthesis (Howard, 1998; Royce, 1987).
[3] Perhaps this might contextualise the nature of such a task (but not in any way excuse its obvious limitations and flaws).

psychological science as it is encompassed within social science research and the broader field of scientific knowledge acquisition. Also included is the introduction and discussion on the meta-theoretical framework utilised according to which theories and models of dynamic assessment within intelligence are to be studied. This chapter also discusses the influence of historicity, socio-politics, concepts, theories, schemata and models within social science research. *Chapter 4* addresses the fundamentals of psychological assessment and includes sections on the mathematical, statistical and measurement foundations and concludes with how these foundations form and are informed by intelligence assessment specifically dynamic assessment and details the manner in which these concerns fit into the larger attenuated Madesnian framework. *Chapter 5* revolves around the comparison of dynamic assessment theories and models within intelligence assessment and seeks to explore the developed meta-theoretical framework for dynamic assessment and intelligence. *Chapter 6* concludes the study with summaries, conclusions and recommendations. Two appendices are attached which include Appendix 1 section A and section B as well as Appendix 2. *Appendix 1 section A* concerns itself with a meta-analysis conducted on South African research within dynamic assessment. *Section B* details the extensive codings used within the meta-analysis and is included for any future replication studies which might be conducted on the studies. *Appendix 2* discusses the content analysis conducted on completed questionnaires sent out to dynamic assessment practitioners across the globe.

1.5 An in-depth look at why such a study is necessitated

At the outset it must be stated that this treatise may be considered an affront to much of what is currently routinely accepted as being "true" and the intent of this study is not to uncritically attack any point of view. It is in the hope of scientific and scholarly discourse and debate that the author does not fall into the trap of being critical but rather engaging in creative attempts to offer partial solutions to the questions being asked (Horn, 1979). The author does not seek to create a "theoretical superstructure" (Purves, 1997) but merely a tentative exploratory framework. Dynamic assessment research currently exists within a framework informed by the history of intelligence[4] research but has as its main driving force theories and ideas[5] emanating from Vygotsky in the 1920's and notions of assessing potential derived largely from findings of immigrant childrens' intelligence results on traditional (static) test batteries in the 1950's. However, there are other theories and ideas that have contributed to the development of dynamic assessment and these theories will in turn be evaluated in terms of contributions to the field.[6] The *aspect or research problem* that is to be studied in this conceptual and theoretical study is the contextual and theoretical framework within which dynamic assessment is currently housed[7] or the edifice upon which it is based and how it has been influenced by intelligence research within psychology. In an attempt to more fully understand this foundation and improve upon it, the construction of a newly revised framework will be attempted to further solidify and inform the progress of dynamic assessment theory and in turn practical assessment research.

The context of the social reality (phenomenon or problem area) constitutes the reality of intelligence research. This realm is further refined by a novel approach to intelligence research, namely dynamic assessment research. Intelligence assessment

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[4] Although Binet's thoughts on intelligence (encompassing the notion of assessing whilst learning) is currently common knowledge within assessment, it is still of interest to note that his original theoretical ideas were "nowhere to be found" in the translation by Goddard when it was brought over to the United States (Resing, 2001). Only in 1973 with the comprehensive treatment of Binet's work extolled by Wolf (1973, in Sarason, 1976) did his work and basic philosophy become entrenched in assessment theory (Sarason, 1976). It is of interest here precisely due to the loss of this basic theoretical underpinning. Why his theoretical notion was not carried through remains speculative, especially since the Stanford-Binet has had such an overwhelming influence on test development especially in the United States with particular influence on the Wechsler-Bellevue Scale (Boake, 2002). One can only surmise what the present-day scenario would have been regarding the understanding and measurement of intelligence, had his views "filtered" through. Also of interest is the early continental European influence within dynamic assessment, as Binet was French. Later, Russian ideas on child development were to reveal similar sentiments in terms of assessing the child whilst engaged in the learning process. Standardised tests were banned from the Soviet educational system in 1936 partially as an attempt to escape the notion of classification (the idea of classification bore all too strong a resemblance to an autocratic tsarist regime - a regime which the governing party of the day sought avidly to avoid) (Valsiner, 1988). The history of intelligence testing is loaded with political and ideological sentiments especially regarding the "divine right of the King" prominent throughout Europe up till the late 19th century and manifesting particularly in countries such as Britain and the greater Soviet Union. "In more recent times the corresponding theory that supports a class structure is the belief in the innate superiority of the educated upper classes, with its corresponding overemphasis on the genetic components of intelligence" (Wortis, 1987). It was this very issue of class distinction that was partially responsible for the abolishment of standardised testing in the Soviet Union with the resultant emphasis being laid upon instructional assessment of children, i.e. assessment via learning processes and hence a precursor to the dynamic assessment of children.

[5] It is imperative to note that as preliminary reading suggests, ideas and notions (such as Vygotsky's Zone of Proximal Development [ZPD]) cannot always be interpreted as "theory" as is commonly accepted in scientific circles. Dynamic assessment research at times produces conclusions which may or may not adhere to the scrutiny of what constitutes a theory or model. For instance, in the span of just one article by Sternberg and Grigorenko (2001a), Vygotsky's ZPD was at once described as being a 'notion', a 'concept' and a 'theoretical notion'. Likewise Feuerstein's approach is referred to as a 'paradigm' - is it worthy of paradigmatic status at this stage as stipulated by Kuhn (1962)?

[6] A post-modernist may ask why the need to impose coherence on a system is necessary in the first place. The fact that gaps are found in many areas within dynamic assessment theory and practice may not necessarily be construed as a negative aspect from a post-modernist point of view (Mautner, 2000). However, as will be highlighted in due course, in order for this field to progress within the current structure in which it is located, these gaps (which are poor in information regarding theory and practice) are areas which at this stage detract from dynamic assessment's progress and hinder its development.

[7] By this is meant the theories, models, philosophies, axioms, meta-contexts, constructs, schematas, frameworks, typologies, methods, concepts and ultimate goals behind various intelligence theories and models. Ultimately theory is built from concepts, variables, statements, formats, axioms, propositions and hypotheses (Turner, 1982).

takes place within a multi-layered context consisting of cognitive and non-cognitive variables (Sternberg & Grigorenko, 2002), distal and proximal influences (Feuerstein, Rand & Hoffman, 1979), socio-cultural variables (Vygotsky, 1978), impinging contextual factors such as the continued nature/nurture debate (Fienberg & Resnick, 1997; Miller, 1989), the socio-economic environment (Murphy & Davidshofer, 1998), biological predisposition research (Grigorenko, 2004a; Quartz & Sejnowski, 1997a), developmental models (Van Geert, 2000) as well as historical/political/social/cultural and philosophical forces which inform and are in turn informed by intelligence research; theory generation, meta-theorising and the progress of social science research (Shweder & Fiske, 1986) amidst many other factors which have shaped and continue to shape current trends in intelligence research. Regarding the importance of historicity, Louw (2002) recently emphasised the need to critically assess history when interpreting the position of psychology within society and this same sentiment rings true of dynamic assessment research, "…*history* provides a more powerful starting point for an analysis of the position and functioning of [dynamic assessment] in contemporary societ[y]" (own emphasis and substitution) (p.2). The above-mentioned context of social reality is embedded within the study of both individuals and groups within society. Literature within this field points decisively at this level of analysis, often not venturing beyond the context of "the group" (such as classroom, student lecture group, hearing-impaired learners, grade-school children, mentally-retarded individuals etc). Organisations and communities will undoubtedly benefit in the long run, but the focus within the area of dynamic assessment research has thus far confined itself to the study of individuals and sub-groups (Carlson, 1995; Haywood & Tzuriel, 1992; Lidz & Elliott, 2000a; Van der Aalsvoort, Resing & Ruijssenaars, 2002).

The proposed study is theoretical in nature and as such, the above-mentioned factors do not *directly* impinge on the outcome or conclusions reached in the study. However, these factors play a major role *indirectly* in constituting the reality within which practical research takes place. In an empirical study these factors would necessitate in-depth analyses and an obviously closely integrated study. A theoretical study by nature a level above practice in terms of concept definition already encompasses these variables or factors in its theorising or model building. It is in essence a meta-theoretical approach towards the study of dynamic assessment framed within the progress of intelligence research (Berger & Zelditch, 1993b; Denishoff, Callahan & Levine, 1974; Fiske & Shweder, 1986; Hempel, 1970). In constructing a new theory or model, these factors would be considered in the process as major contributors.

1.6 Pertinence to the South African context

South Africa, although a fledgling democracy and despite great strides that have been made in a variety of contexts since 1994, still harbours an enormous amount of untapped potential in its peoples. Schooling in South Africa has unfortunately lingered under great strain and stress and as a result many students are not equipped to handle the educational environment within the tertiary context. The various results from dynamic assessment studies (Murphy, 2002; Murphy & Maree, 2006) has shown that the validity and reliability of this form of assessment is tenable as a means of predicting academic success in the tertiary environment within limits, as well as performing a function aside from the educational context (such as language disorders and hearing-impaired research) (Pena, 2000; Pena, Iglessias & Lidz, 2001).

The social, legislative, cultural, economic and moral circumstances in the country are legally[8] founded on equality and opportunity and these ideals are automatically subsumed within various sectors of society, education assuming a leading position. In order to redress the past circumstances in this country the above-mentioned factors play paramount roles and are perhaps more overly sensitive to discrimination due to the tainted past. Basic health, low-cost housing and education are areas that are receiving more attention from government and corporate citizenship across the board in South Africa. This study seeks to research further the theoretical framework in which dynamic assessment is housed so that further practical research can take place within educational assessment and in so doing allow more people greater opportunities to grow and contribute to society by means of a better education. This is, needless to say, a long-term goal for which to strive.

Past methods of assessment of individuals remain an area of focus. Dynamic assessment research can aid in this endeavour. However, a stale-mate has been reached in the area of dynamic assessment research across the globe in that dynamic assessment cannot adequately progress upon a theoretical footing that is tenuous to say the least and in order to construct assessments, engage in educational enrichment studies and in general proceed with new batteries, a theoretical model which seeks to synthesise various approaches within the intelligence field needs to be investigated first.

Elliott (2001) states for instance that the possible reason as to why dynamic assessment has not reached as wide an audience as it should, may be due to the methodological and procedural difficulties encountered when attempting to identify what exactly learning potential is, "one problem lies in the many different tasks and modalities that can be used to assess this construct" (p.186) and this is of particular concern to this study as the ill-defined notion of hypothetical and empirical construct poses many

[8] It must be noted that since the inception of the new-found democracy in South Africa in 1994, equality in its broadest sense is accepted legally. However, the pervasiveness of inequality in many areas of life is still evident. Reality thus tempers the notion of equality for all, notwithstanding this reality however, constitutionally all are equal in the eyes of the law.

hurdles. Note that there is as yet no consensus within intelligence research as to the exact definition of intelligence either (Anderson, 2005a). This is of course a main issue both within the broader intelligence field and dynamic assessment, hence the need to delve into ontological and epistemological questions. Elliott (2001) maintains that lack of explicit delineation of dynamic assessment's purpose may also well impede the progress of the development of this sub-field. Sternberg and Grigorenko (2001a) firmly put forward their reasons as to the limited utilisation of dynamic assessment, namely that current conceptualisations of dynamic assessment culminates in ill-defined conceptualisation, operationalisation and the subsequent analysis of the construct. Perhaps the most enlightening statement made by the aforementioned authors is that "the reason that dynamic testing may have remained merely promising is that we have incorrectly conceptualised and operationalised what it tells us, resulting in scoring that gives us a misguided conception of what individuals can do" (pp.162-163). However, Haywood (2001a) asserts that Sternberg and Grigorenko (2001a) themselves betray a lack of understanding of what exactly dynamic 'assessment' is when they refer to it exclusively as dynamic 'testing', as it binds Sternberg and Grigorenko (2001a) to the psychometric tradition with all the attached issues of standardisation.

Kaniel (2001) reiterates the state of conceptual confusion in which dynamic assessment presently finds itself,[9] maintaining that the very term has become indistinct and that it becomes more "fuzzy" as one proceeds towards implementation. "The blurring of the identity of dynamic assessment is manifested in three areas: (a) conceptual confusion, (b) approaches that are not differentiated and (c) failure to produce an effective intervention program from the assessment" (p.112). Kaniel continues to highlight the areas of investigation hitherto neglected by many dynamic assessment researchers, such as individual differences,[10] up-to-date integration of neuropsychological research, the advances within cognitive, personality and motivation research and concludes that this only reflects a partial list. Noncognitive aspects such as motivation (the core construct within the model proposed by Grigorenko and Sternberg 1998; Sternberg and Grigorenko, 2001; 2002) and attitudes affect performance even on mediated tasks - an aspect that is not duly considered as priority, as lack of transfer is normally associated with lack of potential within dynamic assessment research, an erroneous claim at best[11] (Kaniel, 2001). Ultimately, Kaniel concludes that dynamic assessment perpetuates the mislabelling of children just as static tests do due to the infrequency of dynamic assessments thus resulting in static scores, scores which "perpetuate labelling to a unidimensional score" (p.217).

Resing (2001) brings to the reader's attention that, contrary to the view expressed by Sternberg and Grigorenko (2001a), not all learning potential tests are uniform in format, in other words there is no one specific format for the assessment of learning potential as varying forms of this dynamic approach highlight varying aspects of the potential of individuals. Moreover, Resing (2001) makes mention of the seldom-stated aspects of the different phases of the diagnostic process through which clinicians and their clients proceed. Learning potential assessments, like any other assessment tool, must reflect cognisance of what the aim of the assessment is as well as the answers that are sought from diagnostic queries. Is the goal remediation, prediction or classification? Depending on the aims, not only should alternative forms (static vs. dynamic) of assessment be considered, but so too should the formats (graduated hints, test-teach-test etc) in which the assessments are conducted. Predictive assessments are not necessarily the best format for the assessment of potential, as the nature of the test is not geared up for this nature of inquiry.

A redress in terms of basic philosophies and progress within intelligence research is necessary now more than ever. This study aims to enlighten the progress of dynamic assessment research as a context within intelligence research and takes cognisance of both dynamic assessment's philosophy as well as intelligence research within psychology as a discipline, the growth of testing and the contexts of key players in the field of dynamic assessment which have influenced the direction of research and philosophical grounding within this test movement.

1.7 Dynamic assessment's entanglement

There is currently a heated debate ensuing in academic circles about the status of dynamic assessment within the realm of psychology. In fact this debate has been an ever-present one since the publication of Feuerstein's groundbreaking 1979 book on the dynamic assessment of retarded performers and resurfaced in 1992 when Frisby and Braden severely criticised a number of aspects within dynamic assessment research. During the period between Feuerstein's book and Frisby and Braden's article there were numerous debates within the field but none reached fever pitch until 1998 when Grigorenko and Sternberg (1998)

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[9] And the rest of psychology as a discipline (Jordaan, 1989; Lichtenstein, 1980); the problematic issues evident in dynamic assessment can be seen to be symptomatic of the entire field.

[10] Individual differences as they manifest in test results are becoming more pertinent in the cognitive development literature, and as dynamic assessment is more attuned towards emphasising individual differences, it would make sense to further this area of research. In fact Byrnes (1996) places heavy emphasis on such differences when discussing cognitive development in his book. Variation within cognitive architecture is due primarily to genetic differences but for the most part this architecture is similar across people but experience and environment also account for differences in cognitive abilities (Stillings, Weisler, Chase, Feinstein, Garfield & Rissland, 1995).

[11] However, Resing (2001) does not consider motivation and personality characteristics as part of the concept of intelligence, even though she acknowledges their importance.

published their lengthy article, once again critiquing the field. There has once again recently been an upsurge in criticism within the field. Proponents of dynamic assessment recently engaged in a peer-reviewed debate about the issue of dynamic assessment's integrity and it is pertinent to expand upon somewhat as it further qualifies the need for this issue to be redressed.

The 2001 *Issues in Education* journal dedicated volume 7 number 2 to this debate. Of critical importance is the response garnered from a host of astute researchers within the field of dynamic assessment to the article written by Sternberg and Grigorenko (2001a). The core of the issue rests with the confusion pervading the field both between professionals and seasoned researchers as well as between professionals and novices to the field (Sternberg & Grigorenko, 2001a). Dissension among the ranks also adds to the confusion addressed in the article. Progress within the dynamic assessment field has increased in terms of the number of published articles and results from disparate sources, yet the one common and uniting feature about this mass of research is the lack of coherence and lack of identifiable theory and common thread running throughout the discipline. In fact the dynamic assessment "trend" lacks the very ingredients that most theories in science and social science require for it to be accepted as theory at all. A question that can be raised is whether or not the psychometric approach towards understanding intelligence can be referred to as a science. Rust and Golombok (1992) ponder this very issue and respond by highlighting the fact that social science and natural science research cannot be equated in terms of what constitutes science and the progress thereof. These contentious statements will receive due deliberation in chapters 3 and 4.

Sternberg, among others, as a leading proponent of intelligence research, has tackled many burning issues within the field and has subsequently received due criticism of his own (Fernandez-Ballesteros & Calero, 2001; Gerber, 2001; Haywood, 2001a). However, his critique has come at a time when it is desperately needed. "Some data on dynamic testing are mixed. Some of the data are positive - especially when they are collected by the originators of a given approach" (Sternberg & Grigorenko, 2001a, p.161). Furthermore, it has been intimated that dynamic assessment has yet to reveal its "promise" of a revolution in testing and that not all dynamic testing can assume the role of performing "miracles" of measurement with the zone of proximal development (ZPD). Another major point highlighted by Sternberg and Grigorenko (2002) is the fact that not only are general issues within the dynamic assessment field debated, but even basic issues[12] have yet to receive clarification. It is argued that one of the main reasons why the field is in disarray is due to the sound and fundamental conceptual framework which it lacks. Another seemingly glaring backlog within the broader intelligence field is the fact that the field has not in essence moved beyond the conceptual confines of intelligence as construed by Spearman (1981)[13] (originally in 1904) (Sternberg and Grigorenko, 2001b). A refurbished and renovated or remodelled view of dynamic assessment within intelligence is necessitated. These issues are unwieldy and warrant research at a grand scale. However, it is not the goal of this study to re-invent the field of intelligence, but merely to add clarity and focus to one prominent and continually growing sub-field within it. It is the above-mentioned scenario that has served as the motivating factor and thus spurred this author to conduct this enquiry into the underpinnings of dynamic assessment and to develop for it an integrated and conceptual framework for future studies. That a unified theory as such is to be developed is not the aim nor focus within the framework development and the two ideas are not synonymous (Cooper & Shallice, 1995). Unified theories (as they relate specifically to the cognitive sciences) seek to explain the larger picture; “if a theory covers only one part or component, it flirts with trouble from the start. It goes without saying that there are dissociations, independencies, impenetrabilities, and modularities. These all help to break the web of each bit of behaviour being shaped by an unlimited set of antecedents. So they are important to understand and help to make that theory simple enough to use. But they don’t remove the necessity of a theory that provides the total picture and explain the role of the parts and why they exist” (Newell, 1990, p.18). It is with this in mind that a meta-theoretical framework is warranted and may prove helpful.

1.8 The role of science

Science as a concept and word originates, from among other root words, the Latin “scientia” meaning "to know" and science’s main duty is to solve issues that pose some sort of problem to society and in so doing become familiar with the issue at hand. In essence, it is "to know". Another point highlighted above, is the fact that these issues occur in everyday life and this cannot be more stressed than it is within the social sciences as many issues affect the ordinary citizen in society. In essence, any basic scientific exercise that seeks new knowledge and information is in fact contributing to the advancement of science, no matter how obscure the data might seem. The point is any new knowledge will, at some time or another, contribute to science, but the question should really focus on how great the impact will be. The specific context within science here is of course dynamic

[12] Basic issues here relate to the definitions of dynamic tests and dynamic assessments as well as to what constitutes dynamic assessment and what does not. In their rebuttals to various researchers' responses to the original article, Sternberg and Grigorenko (2001b) state that the "mutual conflict, in itself, is not worrisome. What is worrisome is the certainty with which each expert touts his or her own particular point of view in the name of 'fact' " (p.253).

[13] As Sternberg and Grigorenko (2001b) point out, "Would any other field in psychology, or science, for that matter, have pride in using a theory that dates back close to a century?” (p,257). Similar sentiments are echoed by Suzuki, Ponterotto and Meller (2001) who lament the lack of change as it pertains to multicultural assessment. Cf. also Neisworth and Bagnato (1992) in which intelligence tests are in general criticised due to a lack of definition of what constitutes intelligence as well as the lack of theoretical basis for most intelligence tests. Carroll’s (1996) reverence for Spearman’s intelligence research is justifiable yet he does note the current preoccupation with theories well past their sell-by date.

assessment research within intelligence research within the broader field of psychology and some proponents within psychology will most assuredly consider the discipline a science. By attempting to "rescue" dynamic assessment research and make it more palatable to practitioners everywhere, the field needs to be grounded in a coherent and theoretically defensible framework. It was Arthur Eddington who once stated that an experimental result should never be trusted till it was confirmed by theory. It is precisely this notion that will serve to guide this study. The advancement of dynamic assessment as a science can only take place once this bedrock of theory and concept is properly cemented within the field, and as such, this study can most certainly advance science in this regard and these issues will be discussed in chapter 3.

1.8.1 A personal note on philosophical affiliations

In order to clarify at the outset the aims of the study, it is considered prudent to unambiguously and clearly state the case of the author's own intentions and inclinations within the sub-discipline of psychological assessment, namely dynamic assessment within intelligence, within the broader discipline of psychology, within the yet more encompassing scope of social science research and ultimately the broadest of all schemes: science and as is stated here, "before undertaking any psychological study, one must assume a basic belief in the specific nature of life, which is a philosophical exercise" (Brennan, 1982, p.138). This is reminiscent of Winch's ideas concerning the nature of understanding in its broadest sense "for any worthwhile study of society must be philosophical in character and any worthwhile philosophy must be concerned with the nature of human society" (1970, p.3). This advise is taken to heart. After all what is a PhD but a degree of *philosophy* which in this case happens to have as focal point psychology (Royce, 1970)? Like Dawkins (1999), the author wishes to convey the unabashed feeling of surety in her firm predilections for certain views which are not always in vogue (certainly not currently) and in order to accomplish this the tone of the thesis "is not conciliatory or apologetic - such is not the way of an advocate that sincerely believes in his case" (p.v).

Regarding the notion of science per se, a preference for more positivist stances (which includes a host of subsidiary philosophical branchings such as instrumentalism) is ceded as underlying affiliation, with a preference for the works of such historians and philosophers of science such as, among others, Francis Bacon; John Locke, David Hume; August Comte; the philosophers, mathematicians and logicians associated with the Vienna Circle; John Stuart Mill, Carl Hempel, Ernest Nagel, Charles Peirce, John Dewey and the numerous natural scientists who have uncovered and yielded to the public world a wealth of useful information.[14] Doubtless, these early views are perhaps more restrictive as a framework from which to work, but the point here is not that firm advocacy of these approaches cannot be made malleable by refining of these originators' works but more the point that these are the roots from which personal affiliations emanate and also, these aforementioned luminaries did not always agree on many aspects, resulting in contentious and often heated debates (Outhwaite, 1987). Conceptual shifts within the discipline are an ever-present occurrence in which there are shifts away from justificational epistemologies such as logical positivism, a move away from classical rationalism, a subsequent re-appraisal of classical realism, a move away from determinism to the acknowledgement of complex systems and much else besides (Mahoney, 1989). There are countless virtues in these reappraised movements and surely befitting of growing trends of newer ideas but as Miller (1985) states, at times the discipline is reminiscent of an "intellectual zoo" (p.40). However, the lure of the original philosophies is an enduring one, much can be done to tailor it, but the foundation is cemented and for a reason perhaps. The author's acknowledgement of theoretical psychology[15] as a subdiscipline within the field may also at times seem contradictory to her affiliations with positivist schools of philosophy as the positivists' leanings were certainly not in the direction of theoretical speculation (Kukla, 1990b; Slife & Williams, 1997).

Regarding psychological movements and schools of thought, the author is less than enthusiastic about the future of the discipline of psychology in its current form or should that be forms? Which is perhaps the point. There is no need for fear of the loss of one's favoured area of interest and research, for these can be accommodated quite freely within other disciplinary areas. The existence of psychology departments the world over is testament to the discipline's firm positioning in academia (at least this is how it is seen from the lay public outsider point of view). That ponderings of the splintering and continuing fragmentation of psychology as a discipline is negative and not altogether helpful is acknowledged by some as aiding in the downfall of this discipline. This is considered an unfair allegation, and an affair seemingly within the grasp of theoretical psychology given the fact that the "founding fathers" (James and Wundt) were mostly theoretical in orientation (Slife & Williams, 1997). Fragmentation can also be viewed as a consequence of "disciplinary boundary maintenance that is called into play by personal, social, and institutional forces" (Stam, 1998, p.70) and not merely as a problem in need of a solution. The continuing search for knowledge, whether to aid in general or to simply satisfy human curiosity might not be value neutral but the methods should be (subjectivities taken into account). The physical sciences are replete with sub-disciplines evidencing ever-increasing fragmentation, yet physics still manages to progress along a firmer footing than psychology (McNally, 1992); so fragmentation

[14] Ignoring for the moment those darker periods in history during which much science has indeed had dreadful consequences (and currently still evidences), but then again, it is not the method of discovery which is being critiqued here, but the all-too-common denominator called the human factor.
[15] Not necessarily equated with philosophy (Slife & Williams, 1997).

per se cannot be proffered as sole reason for the lack of similar progress within psychology. Furthermore, the author firmly believes that all manner of statistical treatment of data can confer much understanding of numericised data, but ponders the often explicit denial of the lack of fit that these manipulations of data sometimes evidence thus resulting in a mere plethora of data and analysis bringing the discipline no closer to explanations of behavioural functioning and phenomena than was the case fifty years ago. Why is this? Why is there such staunch resistance in seeking alternatives to the methodological study of social concerns? Enter the various "isms" of which there is also an unfortunate plethora. One might state that the author cedes no leeway for any action at all; what with critiques of how social science is now practised and how it is purportedly being rectified. But is it being rectified at all? The author's views, just as with any other view, is of course open to much critique of its own, but an attempt is made to aid in directing, at least for dynamic assessment, a potential path to follow which may allow for greater acceptance of what this method of assessment has to offer the ever-bourgeoning field of intelligence research.

These preferences are really of course just that: preferences. Simply ignoring the wealth of views emanating from a number of alternative perspectives would be tantamount to a heresy of sorts! So many wonderful and immensely inspiring ideas flow from the works of opposing schools of thought, that it becomes, at times, very difficult to attempt to draw a line demarcating this preference from another. Also, at times, is the yearning to draw from alternative views in contradiction to the views espoused by the aforementioned.[16] However, wild eclecticism is to the author's mind not a viable manner in which to study phenomena in general. Fusing ideas from various views into a coherent and defensible treatise is one thing, but willy-nilly picking and choosing from what ostensibly looks good is not good practice. Constructionism, deconstructionism, relativism, feminism, Marxism and countless many other "isms" pour forth into "enlightened" current literature but the author questions the real progress that much of these movements in fact proffer as. As Grace and Farreras (1998) maintain "although logical positivism may be untenable from a strictly philosophical view, postmodern and postpositivist philosophies have yet to articulate a more effective methodology for psychology" (p.68) where qualitative methodologies have often been paralleled with the latter and quantitative methodologies paralleled with the former; a state of affairs in need of rectification (Michell, 2005). It is always good practice then, to posit ones own affiliations and leanings regarding the topic at hand, for much energy will be spared in trying to defend the argument. The author vehemently criticises much of what the aforementioned schools have to offer the social sciences, not their methods per se, but rather the application of their methods to the study of the social sciences in general and often lays the blame for the state in which social science finds itself squarely at the feet of those social scientists positing critiques of their own about the methods they so carefully endorse! Lest the author of this treatise be accused of much the same thing, the defense of affiliations is stated at the beginning.[17]

This study, then, is neither a study in the philosophy of science nor social science, neither is it a study in the philosophy of measurement nor a study on the subject of intelligence per se. It is a study on how such philosophies impinge on the placement of dynamic assessment within intelligence, for it is hypothesised that these very foundational issues lie at the root of many problems facing the future of dynamic assessment. It is "back to the drawing-board" time, time to stop and think about what it is that dynamic assessment is trying to achieve within the greater realm within which it is subsumed, whether or not it likes this enclosed area within which it works and how best to sustain it in its present form, or to at least attenuate it so that it remains in existence albeit in different form. It must be noted at the start of this thesis that although the application of the meta-theoretical model is developed through chapters 2 – 4, continuous comment will accompany the chapters in terms of applications of certain views to dynamic assessment. This is done so as to present a coherent flow of thoughts throughout the study and to remind the reader that each chapter is fully intertwined within the study but needs to be discussed within its own context.

1.9 A map to the study

The study takes a number of argumentative turns throughout the ensuing discussions and a map may be helpful as an aid in placing the various chapters into context (see figure 1 below). The study is an exercise in:

- "Exploring" – hence no definitive conclusions are reached, however, firmly supported statements are upheld throughout the study which consistently wend there way through the exposition. Preceding chapter 3 are epistemological and ontological issues which form the bedrock of theory development and hence impinge on the movement of the discipline as a whole. Certain issues are discussed as they pertain to intelligence assessment (chapter 2)

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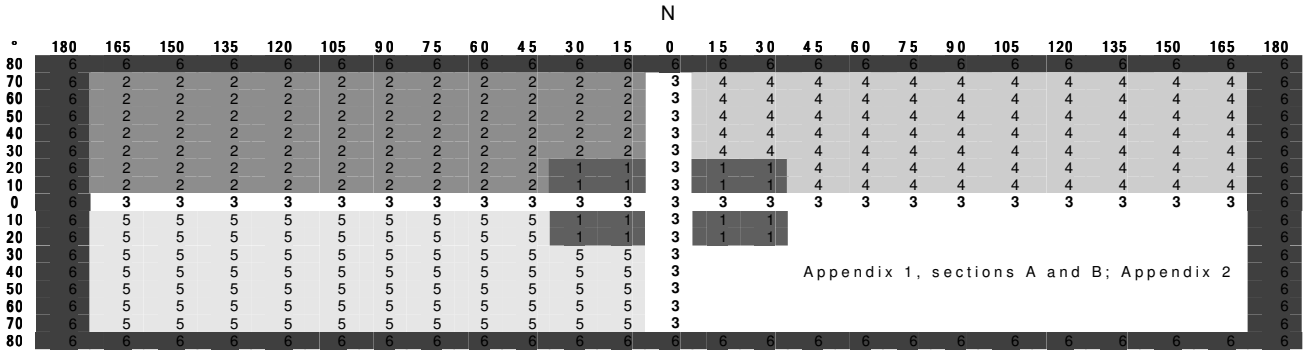
[16] For instance, as will be evidenced in chapter 2, the author has leanings towards a more reductionist approach to the study of human behaviour and as such prefers inter-theoretic reductions (if such theories are not competitor theories) but takes exception to the strict reductionism offered by evolutionary psychology in explaining away human behaviour as an example (Maiers, 2003).

[17] Although there is a firm affiliation for the scientific method (with attenuations of course) the author also acknowledges that science, as with any other knowledge-gathering enterprise is open to all sorts of recriminations. The author has learned that nothing is completely known, nor will it be completely known in the foreseeable future, but there is another belief which resonates with this sentiment and that is the firm belief that, in time, many things will become completely known. But for now, there is always doubt, even in and of scientific products, be they natural science or social science products.

- "a meta-theoretical framework" - in order to address meta-theory, the first step is to address theory (chapter 3); within theory, concerns such as science development, social science progress, psychological theory development and theory appraisal are addressed (chapter 3). Lastly, a meta-theoretical framework is attenuated and deployed for the purposes of this study
- "for dynamic assessment and intelligence" - a major artery within psychological assessment is the life-supporting role played by the quantitative imperative. The manifestation of this quantification plays out in the functioning of null hypothesis significance testing, supported in part by mathematical foundations. Dynamic assessment is placed precariously between poles of differing assumptions (chapter 2 and 3) and statistical and measurement issues plague this manner of assessment in deterring it from a progressive path forwards (chapter 4). Dynamic assessment and intelligence can only be discussed once the foregoing foundations are laid down. Utilisation of the chosen meta-theoretical framework culminates in the discussion of the placement of various dynamic assessment models and theories within intelligence assessment (chapter 5) concluding with chapter 6.
- Two appendices yield new information. Firstly, South African data are used to determine an effect size from a meta-analysis conducted on dynamic assessment studies and secondly, questionnaires are analysed for pertinent themes which address the cadre of queries posed in chapters 2 – 5. Paucity of original data has relegated this section to appendix status

Figure 1 The analogous co-ordinate map illustrating chapter placements



Key:

This two dimensional co-ordinate earth-based map illustrates the positioning of the various chapters. Zero degrees longtitude and latitude are the two axes along which *chapter 3* is positioned. The meta-theoretical framework forms the two axes throughout the study and serves to keep the structure in place. *Chapter 1* occupies the least co-ordinate space as it is merely introductory and is thus located around the centre of the map serving as point of origin. *Chapters 2 - 5 as well as the appendices* occupy the four quandrants as they build the structure of the study. *Chapter 6* concludes with all inclusive chapter information thus framing the co-ordinate map.Shading merely aids in visualising the chapter sections. The *Appendices* quite rightly deserve chapter status but due to quality of data were chosen to reside in the fourth quandrant

1.10 Conclusion

An overview of the study has been presented in which the motivation and rationale has been discussed and chapter demarcations have been delineated which detail the nature of the study. An in-depth review of the current debates within the dynamic assessment literature has been highlighted to further support the need for a study such as this. Chapter 2 proceeds with an investigation of the author's implicit philosophical underpinnings and affiliations as these pertain to the field of assessment, after which an exploration of a meta-theoretical framework for dynamic assessment and intelligence will be discussed.