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A review of South African research in the field of dynamic assessment

Raegan Murphy

PO Box 27846, Sunnyside, 0132

D.J.F. Maree

Department of Psychology, University of Pretoria, Lynwood Road, 0002

Correspondence should be addressed to Raegan Murphy, PO Box 27846, Sunnyside, 0132.

Abstract

Dynamic assessment, which is often characterised by the learning potential approach across the world and in South Africa, is receiving more attention from educators and research practitioners alike. When compared to the status of international research, local dynamic assessment research can still be regarded as being in its infancy. A selection of studies conducted within this domain was analysed and the results carefully assessed in terms of positive and negative findings to serve as an indication of the trends that this discipline may face in South Africa.

The main findings indicate that although the field is still being researched today, there has been a decrease in the number of studies as well as a concomitant decrease in the implementation of dynamic research efforts. The reasons cited are a lack of time, costs, inefficiencies and also confusion as to what dynamic assessment entails. There is, as yet, no consistent definition of dynamic assessment in South Africa, which makes it all the harder to entrench dynamic assessment as a methodology and implement it on as wide a scale as possible.

Traditional psychometric assessment (static assessment) has prided itself on the extent to which it delivers reliable and valid estimations of what it purports to measure. However, the degree to which static assessment measures learning potential is questionable as static assessment is a product-based approach to assessment founded on assumptions of performance stability (Lidz & Elliott, 2000) whereas dynamic assessment is more process orientated, focusing on the learning that takes place during assessment (Ruijssenaars, Castelijns & Hamers, 1993).

To date, educational institutions and the private sector have relied mostly on static tests, which indicate proficiencies or lack thereof in certain skills or abilities. They do not encompass the added notion of being able to test for the ability or the potential to learn the specific task at hand. If educators continue to assess learners based on static assessments, such as conventional IQ tests, and from this infer who will receive special treatment (and in so doing stigmatise learners) some learners might be put at a disadvantage in terms of not being able to develop their full potential. Learning potential theory states that potential may reside in learners, a potential which may remain untapped if the learner is assessed in a conventional manner. This potential is often observed over a period of time, in which cognitive development can take place.

Psychometric testing has developed from the conventional approach in the early twentieth century, where static measurements were commonplace through to the information processing approach developed in the 1960s with the advent of the personal computer (Taylor, 1994). However, neither the conventional nor the information processing approaches take cognizance of the potential which resides in individuals to accomplish tasks. Another aspect of the developmental or dynamic approach is the suitability of tests to overcome cultural, educational and environmental biases, evidenced in many conventional static tests. For instance, among other methods of overcoming these biases, certain tests encompass items which

are not knowledge based and do not require of the individual to necessarily be formally educated.

Owing to previous socio-economic and educational disadvantages which many students have experienced and still do today, dynamic assessment tests (or learning potential tests as they are also commonly referred to) appear to offer the test-taker an opportunity not afforded by conventional test models. There is a niche for the use of dynamic assessment on a larger scale in South Africa. This fact has been realised by many local researchers (Andrews, 1996; Boeyens, 1989a, 1989b; De Beer, 2000; De Villiers, 1999; Henley, 1989; Lipson, 1992; Shochet, 1986; Van Aswegen, 1997; Zolezzi, 1992). However, to more effectively understand the nature of dynamic assessment and in the attempt to develop such tests, a greater understanding of what research has gone before and of the conclusions reached has first to be attended to.

Dynamic assessment is a field which, although researched for a number of years overseas, particularly in Europe, has yet to find its place in mainstream South African research. Apart from some professional and academic institutions which have tried to implement dynamic assessment as part of selection and placement initiatives and a few organisations which have stressed the remedial aspect of dynamic assessment, it would seem that most research emanates from graduate studies at a select number of universities. Their findings provide support to further bolster the use of dynamic assessment in a variety of contexts. Researchers who are currently working in this field are not always aware of the number of studies that have been conducted, an area which this study sought to remedy. The problem addressed in this article is to find out what is being done and has been done in the last two decades in South African research in the field of dynamic assessment in order to provide a summary of findings which may aid future endeavours in this field.

Brief background to and development of dynamic assessment

Intelligence - the elusive multifaceted diamond

Dynamic assessment, as with other approaches in test theory, is irrevocably drawn into the intelligence arena, and thus finds itself linked to debates within the intelligence field. "Concepts of 'intelligence' are attempts to clarify and organize [a] complex set of phenomena. Although considerable clarity has been achieved in some areas, no such conceptualization has yet answered all the important questions and none commands universal assent" [italics added] (Neisser et al., 1996, p.77). Neisser et al. (1996) add that current theories of intelligence (of which there are many) illustrate that there are many kinds of intelligence and that traditional psychometric tests capture only a select few of these types. Apart from the fact that different types of psychometric tests exist for the sole purpose of investigating specific intelligence issues within narrowly confined contexts, the psychometric school has received grave criticism with due legitimacy (cf. Daniel, 1997).

Some of the criticisms levelled at psychometric testing include issues regarding cultural bias against testees not accustomed to experiences which are taken for granted in test situations; also included is the fact that psychometric tests assess current functioning based on what has been learned and not what can be learned as well as the static and immutable scores which are yielded by such tests (Campbell & Carlson, 1995). These criticisms raise the question of the suitability of traditional or conventional psychometric tests in educational contexts. Neisser et al. (1996) discuss the current efforts in the intelligence field and systematise the conceptualisation of intelligence, referring to five broad classifications within the field, namely: the psychometric approach, multiple forms of intelligence, cultural variation, developmental progressions and biological approaches.

The psychometric approach involves intelligence tests, intercorrelations between such tests and the notion of the as yet ill-defined concept of "G" or commonly referred to as "g". Multiple forms of intelligence refers to theories advanced by Gardner and Sternberg. Gardner's Multiple Intelligence (MI) theory identifies the existence of seven distinct "units of intellectual functioning" (Morgan, 1996, p. 263) which include logical-mathematical, linguistic, musical, spatial, bodily-kinaesthetic, interpersonal and intrapersonal intelligences. Sternberg, who along with his Triarchic Theory of Intelligence (a theory which takes cognizance of three types of information processing components and departs from traditional theoretical perspectives) (Sternberg, 1997), also advocates the search for theories of practical intelligence found in day-to-day settings (Sternberg & Wagner, 1986). Cultural variation includes aspects of intelligence considered intelligent in one culture and not in another. For instance, cognitive anthropologists have investigated how the Kpelle (members of an African group) handled geometric shapes (Cole, Gay & Glick, in Beals, Hoijer & Beals, 1977). Their findings showed that the Kpelle language possessed relatively few terms for naming geometric shapes and testees were thus unable to differentiate between a circle and an ellipse as quickly as their Western counterparts. Moreover, their survival strategies do not include the need to finely discriminate between circles and ellipses. Developmental progressions, as expressed in Piaget and Vygotsky's developmental theories, emphasise opposing views as to what enables intelligence to flourish, such as biological preparedness (Piaget) or proximal development via social mediation (Vygotsky) and lastly the biological approach, in which the aspects of brain anatomy and the workings of the brain receive more attention in the intelligence research across cultures (Nell, 2000).

Taylor (1994) offers an integrated approach to cognitive assessment, based on three traditional approaches to assessment: the conventional or structural approach, the information processing approach and the learning or dynamic approach. Through the fusion of these three

approaches, Taylor seeks to accommodate their theoretical underpinnings and thus construct a test battery reflective of all three approaches, which can be used within the local multicultural context.

The origins of dynamic assessment – early twentieth century ponderings

The development of ideas within the field of dynamic assessment can be clearly traced throughout the last century. Notions of "learning to learn", the ability to learn, progress of learning, and propensities to improve when given sufficient training were already being pondered in the 1920s and 1930s (Lidz, 1987b). It was during the 1940s that the notion of equating intelligence with the ability to learn came to the fore. The evidence suggesting that intelligence and learning did not co-vary as measures of intelligence arose to spark more controversy (Lidz, 1987b).

Guthke (1982) notes three main reasons why the development of dynamic assessment was temporarily halted: the premature death of Vygotsky, the temporary rejection of psychometrics by Marxist psychologists such as Konstantin Kornilov who stated that Marxism should break ties with "mentalism" (Kozulin, 1990, p. 76) and Vygotsky's overemphasis on imitation (presumably imitation of adult's behaviour by children is not the only important aspect in dynamic assessment). When similar ideas did surface the world over, some independently, not all referred back to the original ideas of Vygotsky (Nell, 2000). Vygotsky was rediscovered "…at a very special historical-psychological moment: on the wave of the growing popularity of Piaget's theory and the revival of cognitive psychology in the United States" (Kozulin, 1990, p. 278).

The 1950s was a period noted for its emphasis on coaching and an attempt to equalise the opportunities of disadvantaged learners when taking tests. By providing hints to the learner one was able to investigate the limit a learner was able to attain, based on the number of hints

needed to complete certain exercises. The 1960s saw a surge in the test-teach-test model, espoused so often today as the hallmark of dynamic assessment techniques. The 1970s was perhaps the most notable decade in terms of expertise in the field. During this period a number of prominent researchers in the field came to the fore. Of note is the introduction of the work of Feuerstein and Vygotsky to mainstream American academia. Dynamic assessment, it must be recalled, found its origins in Europe, although different approaches towards psychometric testing had started to occur concurrently in America.

Growing concern over the issues and problems associated with static testing came to the fore in Israel and America, where the work of Feuerstein and Budoff, Carlson and Lidz started to become prominent in the dynamic assessment field (Grigorenko & Sternberg, 1998). This decade also saw the controversy surrounding the predictive validity of dynamic assessment, partially resolved by certain researchers in the field (among others, Carlson and Wiedl) (Lidz, 1987b), but which still remains a challenge today (Nell, 2000). The 1980s saw a spread of dynamic assessment research into hearing and reading-disabled populations. Research and testing was no longer confined to the educable mentally retarded populations (Lidz, 1987b). During the 1980s research into dynamic assessment started to take off in South Africa, albeit not quite to the same extent. Pioneers in this country include among others Boeyens (1989a, 1989b), Gaydon (1988), Henley (1989), Hoffenberg (1988), Murray (1988) and Shochet (1989).

Dynamic assessment and conventional psychometrics: uneasy alliance or mutual beneficiaries?

What is dynamic assessment? There are various definitions available which attempt to capture the essence of dynamic assessment. It would appear that the term "dynamic assessment" is a blanket term encompassing a myriad of concepts, all of which are in some way related to one another. Delclos, Vye, Burns, Bransford and Hasselbring (1992) make mention of the fact that

dynamic assessment may refer to many things, that it may be used in different ways and that results need to be interpreted accordingly. This sentiment emanates from much of the international dynamic assessment literature. It is hardly surprising that there is also a lack of consensus about the meaning of dynamic assessment in South Africa.

Looking for definitive criteria is at least a start in the attempt to define the field. Lidz (1997) offers various definitions based on the historical progression within the field and states that dynamic assessment can be defined according to the relationship between the examiner and the examinee, the nature of the intervention, the model within which the assessment is carried out (typically in a test-teach-test format), the modification of the learner responses as opposed to the assessment and categorisation of the learner only, and the content on which assessments are based. This content is typically academic and is studied primarily in the workplace and educational settings.

The most often cited and clear-cut definition of dynamic assessment is that it usually follows a sequence of a pretest followed by mediation and concluding with a post test (Budoff, 1987a, 1987b; Campione, 1996; Elkonin, Foxcroft, Roodt & Astbury, 2001; Hamers & Resing, 1993; Haywood & Wigenfeld, 1992; Haywood, Tzuriel & Vaught, 1992; Lidz, 1987b; Lidz, 1997; Lidz & Pena, 1996). However limiting this definition may be, it is one of the key features and the most universally recognisable element of dynamic assessment. This is not to say that all methodologies which follow this format are necessarily dynamic in nature.

It is argued (Embretson, 1987; Feuerstein, Rand, Jensen, Kaniel & Tzuriel, 1987; Lidz, 1997; Sewell, 1987) that conventional psychometrics and the comparatively new field of dynamic assessment are conceptually as well as theoretically at odds. There is another view, however, which is tempered by greater regard for both points of view, and which encourages co-operation between both approaches in measurement. Both approaches can be used together as complementary sources of information;[1] "dynamic assessment is not intended as a

replacement of current approaches, but as an addition to currently available procedures" (Lidz, 1987b, p. 4).

Emphasis on measurement within conventional psychometrics and emphasis on training within dynamic assessment are key differentiating features between the two approaches (Hamers & Resing, 1993). In contrast to Minick's (1987) Vygotskian interpretation of dynamic assessment, Hamers and Resing state that the key feature of a learning potential test is that although it possesses the psychometric properties of a regular test, it differs in administration, with the inclusion of a training phase.

Daniel (1997) states that one of the main reasons for the psychometric model's success is in part due to the long history of empirical findings which "gives it a type of robustness that more atheoretically driven models [which of course does not necessarily indicate that dynamic assessment is atheoretically derived] do not enjoy to the same degree" (p. 1043) and also that this model is quite flexible.

However, it goes without saying that if a model seeks to replace the psychometric model or at least seeks to complement the model, it will be expected to eliminate the disadvantages of this model as well as to offer suitable solutions to the various problematic areas. The ever-present issue with dynamic assessment is the fact that many dynamic batteries do not always address issues such as reliability and validity. Although there is some disillusionment with psychometric tests, the scientific accuracy of many instruments belonging to this paradigm is a redeeming feature of this approach. As diagnostically and theoretically superior as dynamic assessment may be, Embretson (1987) states that psychometrists are "less than enthusiastic" about this paradigm of assessment for a number of reasons such as: attempts at modification or mediation may result in scores being viewed with scepticism, since what the scores now reveal is not what they initially may have revealed, hence decreasing the validity of the results. Learning potential is seen by some as an unworkable construct and change measurement (in

terms of assigning reliability to change measures) seems to offer more problems than solutions (previous reliance on classical test theory when measuring change is being supplanted by item response theory).

Furthermore, Lidz (1992) adds that what is perceived by psychometrics as annoying and interfering is in fact the research domain of dynamic assessment and that it is relatively easy to generate data about conventional issues such as validity and reliability but more difficult to generate information about issues such as quality, meaning and process.

The influence of Lev Vygotsky and Reuven Feuerstein - precursors to the study of dynamic assessment

Although there are many theorists that have worked and are currently working in the field such as Budoff and the test-train-test assessment (Babad & Budoff, 1974; Budoff, 1987a; Budoff & Hamilton, 1976), Carlson and Wiedl and their testing-the-limits assessment (Carlson & Wiedl, 1978), Campione and Brown and graduated prompting assessment (Campione, 1989; Campione & Brown, 1987; Campione, Brown, Ferrara, Jones & Steinberg, 1985), Guthke and the learning ability test concept (Guthke, 1982; Guthke, 1993; Guthke, Beckmann & Stein, 1995), the continuum of assessment services (Jitendra & Kameenui, 1993) and the curriculum-based dynamic assessment (Haywood, Tzuriel & Vaught, 1992); only two of the "founding" theorists' work will be briefly discussed namely Vygotsky and Feuerstein. The works of both these theorists are cited in most studies, including South African studies, as being the forerunners of the dynamic movement. Although the work of Vygotsky was not acclaimed at the time of his writing it has since the 1960s received recognition for its contribution to education and the assessment of learners.

The principle works of Vygotsky have been translated from the original Russian and provide insights into the ideas of education and remediation. Historical priority has been

granted to Vygotsky as the founder of dynamic assessment, although as Grigorenko and Sternberg (1998) assert, simultaneous and independent developments within the field have occurred.

Minick (1987) notes that unlike the work preceding that of Feuerstein (whose contribution grew from working with culturally disadvantaged immigrants), dynamic assessment studies have tried to yield quantitative results. He adds that Feuerstein specifically avoids a static baseline measure, as this may well impede the progress of the learner if scores are low or tasks cannot be performed adequately. In doing this, a more positive relationship between tester and testee is established, allowing the child to carry out tasks which reflect both strengths and weaknesses and also provides more individual and specific kinds of assistance (which is most often not the case with other dynamic assessment measures).

Vygotsky's ideas are more qualitative than quantitative and Minick (1987) contends that the work of Feuerstein is closer to that of Vygotsky, or at least more so than the work which is aligned with quantification of learning potential. Vygotsky emphasised the interaction between the child and the tester, as well as the nature of the interaction (Minick, 1987), resulting in a more powerful combination than when either the pretest or interaction is assessed alone (Day, Engelhardt, Maxwell & Bolig, 1997). This is significant because much of the dynamic assessment research in South Africa is very often defined by a pretest, mediation and posttest methodology only.

The emphasis on collaborative activities in assessing cognitive processes is greater than the emphasis on quantifiable improvements, hence the role assigned to the examiner in the work of Feuerstein. The interactive nature of development which is paramount to Vygotsky is indicated in his theories of proximal development, which views the child as developing within a socio-cultural context. Maturing functions are the result of interaction and in order to measure

these functions one needs to assess the child in interaction. Many pretest-posttest studies do not emphasise this critical issue at all.

One of the main differences between Vygotsky's and Feuerstein's approaches lies in the latter's emphasis on modifying deficient cognitive structures within the learner as opposed to Vygotsky's emphasis on social collaboration in the assessment. The role of social collaboration is evidenced in Vygotsky's zone of proximal development (ZPD), which is characterised by the independent performance of a child in comparison to his or her performance when assisted by a more knowledgeable or older peer. The difference in performance is thus attributed to the development evident in the child's zone of ability when aided by a more competent peer (Lidz, 1991; Nell, 2000).

Issues at stake within the field of dynamic assessment

Jitendra and Kameenui (1993) sum up the disadvantages evidenced within the dynamic approach as follows: construct fuzziness (impinging on issues of validity); procedural spuriousness (impinging on issues of reliability); instructional aloofness (impinging on issues of reliability); instrument inadequacy (impinging on issues of validity) and labour intensiveness (an all pervasive negative cost factor in dynamic assessment research). There are a number of issues in this field which will be further discussed namely, reliability and validity, differential item functioning and item response theory, costs and timing and difference (or change) scores.

Reliability and validity

Reliability and validity issues within dynamic assessment are contentious, as these issues are not always deemed as forming part of the paradigm from which dynamic assessment springs. They are complex issues, which have in part been attended to in the work of De Beer (2000),

who, in the authors' opinion, successfully manages to combine the needs of the one school of thought with those of an apparently opposed school of thought. Whether or not purists from either the psychometric or dynamic camps would agree on the methods and techniques used in the above-mentioned research remains to be seen.

Sternberg (1991), whilst referring to Howard Gardner's systems approach to intelligence (the multiple intelligences approach), states that "those who are advocating this type of approach need to demonstrate the psychometric soundness of their instruments" (p. 266). This sentiment applies to dynamic assessment as well, a sentiment which has already been voiced by researchers including Sternberg (Grigorenko & Sternberg, 1998). If dynamic assessment is to take hold within established institutions in South Africa the issues of reliability and validity need to be taken very seriously due to the need for valid assessment tools (stressing validity and reliability) whilst remaining cognizant of the foundation upon which dynamic assessment has been formed (placing less emphasis on validity and reliability issues). Differential item functioning and item response theory (IRT) are partial solutions to the problem.

Differential item functioning and item response theory - partial solutions to the questions of reliability and validity

Differential item functioning (DIF) is used to detect bias when comparing similar ability levels across different cultural and/or language groups. It is important that ability levels are held constant across cultures and languages as low performance may be attributable to language differences and not to cognitive differences (Kanjee, 2001). An item is said to be biased if individuals who are of the same ability but from different groups (culture or language) exhibit widely disparate results when the probabilities state that they should score comparably. Item response theory is one method of investigating DIF (Embretson & Reise, 2000).

IRT is uniquely placed to solve a number of issues within dynamic assessment. Kanjee (2001) lists five distinct advantages associated with the use of IRT for tests: the availability of information at the item level, which makes it possible to select items with high discrimination values; sample invariance, referring to the fact that both test-taker and item are assessed independently from the sample from which data are obtained (the "true" value of an item remains consistent within differing samples); ability scores are independent of the items chosen, as including or excluding items does not necessitate the recalculation of the entire measure; IRT has been said to have found its niche in the computerised age more so than in any previous period due to the advent of computer adaptive testing allowing scores to be made available instantly; and lastly, the graphical representation of information makes for easier analyses.

A limitation of the use of IRT is the large sample size needed to complete such studies, as well as the more complex mathematical models (as opposed to conventional models) used to derive specific formulations and answers. Nevertheless, IRT is construed as an "advanced test theory approach that can satisfactorily handle many of the instrument problems that are dealt with more primitively by CTT [classical test theory]" (Sijtsma, 1993a, p.117; cf. Sijtsma, 1993b). Utilizing IRT is one way in which credibility can be added to the dynamic assessment approach in terms of validity and reliability.

Costs and timing

The most often cited criticisms levelled at dynamic assessment relates to the time taken to administer the assessment as well as the costs involved in doing so (Boeyens, 1989a; Coosner, 1999; Vye, Burns, Delclos, & Bransford, 1987). South Africa can ill-afford a costly and time consuming endeavour in assessment, yet this need not be the case as has been evidenced by the studies of Coosner (1999) and De Beer (2000). A compromise, it seems, would be the best

solution to this dilemma. Utilising computers for assessment (De Beer, 2000) is an example of the flexible use of interventions and approaches, such as evidenced in both the continuum of assessment model as well as the standardised test-teach-test model. These efforts seek to curb costs and timing.

Difference scores

Difference scores cannot directly be interpreted as indicating "potential", for this in itself eschews the ideals of dynamic assessment (which when taken in its purist form, emphasises extensive individual mediation and re-mediation and does not emphasise quantitative values of measures). As early as 1970[2] Cronbach and Furby (1970) recommended a number of alternatives for solving the issue of change measurement without the need to estimate the change scores for individuals. At the time, they put forward a number of superior alternatives, for instance extending the formulations of Lord-McNemar which arrived at better estimates of change, but remained sceptical about the use of gain scores (change measurements). The issue of change measurement is thus not peculiar to dynamic assessment.

In essence, even though both the pre- and posttest scores may have acceptable levels of reliability, this in no way ensures the high reliability of the difference score. This cumulative effect of error measurement most assuredly has an effect on the difference score. Early studies merely subtracted pretest from posttest scores and one has to consider the appropriateness of this strategy. Basic issues within the realm of dynamic assessment have been briefly discussed and with this background in mind, the study methods and results will be discussed.

Method

This study collates information that has been collected from literature sources and, where necessary, additional information gleaned from informal interviews conducted both telephonically, and electronically. The reason for contacting institutions for information about the potential use of dynamic assessment over and above the literature review conducted to elicit similar information was to gauge the level of practical research that may have been taking place concurrently with the literature investigation. It may very well have been the case that research in the area was being conducted and was, as such, not yet available in published literature. Hence, although the main aim of this study is a narrative literature review, value-added information was obtained from tertiary institutions by means of interviews and is included in the study.

Broadly speaking, an attempt was made to answer the questions of how much research has been done on South African samples and what the nature of the varied research findings is. It was not possible to assess all the available databases and information sources that may potentially exist. However, an attempt has been made to treat available material as thoroughly and comprehensively as possible within the given time constraints.

Topic delineation and preliminary sources gained from the literature study

In reviewing the literature on dynamic assessment in South Africa, it has been found that dynamic assessment research and application comes to the fore in two main areas, namely, dynamic assessment emphasising the testing procedure for either selection purposes (the selection and placement of students in tertiary education or the placement of employees into various job categories) or for remedial purposes, the former being the main emphasis in this study.

Databases

International Databases

Both the ERIC (the Educational Resources Information Centre) and PSYCINFO (previously known as PSYCLIT) databases were searched. The overlap in sources was evident but not extensive, owing to the nature of the study (working within the realms of education and psychology).

ERIC, PSYCINFO as well as EBSCO were used to find information on the topic, both locally and abroad (pertaining to local studies). EBSCO makes available the full text version of articles found in accredited journals.

National Databases

Local South African databases played a more prominent role in finding literature sources. The National Research Foundation's (NRF) various databases (such as Nexus) enabled the researcher to trace the most recent theses and studies, either completed or current, and those which were, or are in part, sponsored by this organisation. SABINET perhaps played the largest role in facilitating the accumulation of sources. Many articles currently available in South Africa are indexed in this database. The Human Sciences Research Council's (HSRC) online library as well as their internal catalogue were also made use of on many occasions. In many instances, the various databases complemented one another; in other instances some included sources found nowhere else.

Survey of contacts

The institutions listed below were initially contacted either via electronic mail or via telephone between March and October 2001.[3] Those that failed to respond to electronic mail were

contacted telephonically, and on many occasions were contacted two or three times. The reason for contacting tertiary education institutions was that much of the information gleaned from the literature pointed to the use of dynamic assessment in tertiary education. The domain of dynamic assessment is not exclusively relegated to higher education, but its field of application (and in many other countries the world over) is centred in this area.

Technikons contacted

The following Technikons were contacted successfully:[4] Border Technikon, Cape Technikon, Eastern Cape Technikon, Johannesburg College of Education, Mangosutho Technikon, ML Sultan Technikon, Natal Technikon, Peninsula Technikon, Port Elizabeth Technikon, Pretoria Technikon, Technikon Northern Gauteng, Technikon Orange Free State, Technikon SA, Vaal Triangle Technikon and Witwatersrand Technikon.

Universities contacted

The following Universities were contacted successfully: Medical University of South Africa, Potchefstroom University for Christian Higher Education, Rand Afrikaans University, Rhodes University, University of Cape Town, University of Durban-Westville, University of Fort Hare,[5] University of Natal, University of Port Elizabeth, University of Pretoria, University of South Africa, University of Stellenbosch, University of the North, University of the North West, University of the Orange Free State, University of the Transkei, University of the Western Cape, University of the Witwatersrand, University of Venda, University of Zululand and VISTA University.

In all instances, for both technikons and universities, the contact persons were those either directly or indirectly involved in the institutions' selections and admissions departments.

Follow-up calls were made in certain instances to ensure the accuracy of the information obtained. In a few instances, the follow-up calls yielded information that was not always identical to the original information gathered. As call-backs to all institutions were not always possible because of cost and time constraints, the information recorded is, unfortunately incomplete. The process of collecting data, whether literature or information gathered from the institutions themselves, continued throughout the research year.

General Comments

In this section brief consideration is provided on the confusion of terminology and misinformation about the concept of dynamic assessment, the ambiguous use of the word "potential" and the resultant effects on the status of dynamic assessment as well as misperceptions of the role of dynamic assessment in South Africa.

Confusion of terminology and misinformation about the concept of dynamic assessment

Based on the findings of the literature survey as well as the informal interviewing conducted, it is clear that the definition of "dynamic assessment" requires more considered attention. Although the term is defined in the literature, dynamic assessment appears to refer to a form of testing rather than to a type of test. There are a number of ways in which dynamic assessment is currently understood in South Africa. It is a procedure which includes a pretest and posttest design. The learning or mediation in between is not strictly defined and the straightforward difference between pre- and posttest scores is an indication of "potential". It is aimed at disadvantaged students only and is culture-free, but takes too long and is far too costly to implement. Often, it merely makes use of conventional testing instruments and implements

them in a dynamic manner. Sometimes it is a form of assessment which comprises only mediation and individual attention and is wholly qualitative and thus not suitable for larger samples. In practice it is a form of assessment (consisting of two branches, that of mediation as well as assessment), which emphasises previous deficiencies in learning opportunities, allowing all learners to participate as far as possible on a similar level.

The bulk of South African research in this field places emphasis on the assessment aspect, often not considering mediation or remediation at all or paying only scant attention to it. However, it is regarded by some (for instance Engelbrecht, 1999; L. Irvine, personal communication, August 30, 2001[6]), as unsuitable for South Africa at the moment mainly due to time constraints, costs and less robust reliability and validity indices when compared to more static assessment procedures.

Ambiguous use of the word "potential" and the effects on the status of dynamic assessment

Test batteries are available in South Africa which contain within their titles the word "potential", which apparently conveys the meanings inherent in the terms "ability" and "aptitude". However, these three terms are not synonymous. They represent different aspects of intellectual functioning and measurement. The term "potential" is taken from a process-orientated approach to assessment whereas the terms "ability" and "aptitude" are taken from a static or product-based approach to assessment.

Often all three terms are used in the same sentence, intimating that they can be used interchangeably. This is an indication that, if dynamic assessment is to gain a stronger foothold in as varied a context as possible, the first task is to familiarise practitioners with the differences between such terms, or with differences relating to the approach of the practitioner.

Misperceptions of the role of dynamic assessment in South Africa

When the term dynamic assessment is mentioned to persons involved in admissions, selections and testing in South Africa, those who are not too familiar with the notion often have in mind that this approach is applicable to disadvantaged learners only. Although this is the main field of application in South Africa and abroad, this is by no means the sole field of application.

Dynamic assessment is not only applicable to educationally disadvantaged learners, but to gifted learners (Lidz & Macrine, 2001) (in disadvantaging circumstances), and to average and above-average learners who are struggling with one or more components of cognitive functioning (and these problem areas need not necessarily reflect serious deficiencies). Culturally disadvantaged children, who have not received adequate mediated learning experience at home or who find themselves in a different culture from that of the test compilers, are also learners who can and do benefit from dynamic assessment measures.

Dynamic assessment is not the alternative to static testing, but should be made use of in a complementary manner, for additional value-laden and qualitative information that would be unobtainable through the exclusive use of static measures. Dynamic assessment is also not a method through which standards are lowered in order to accommodate larger numbers of disadvantaged students, but merely seeks to identify those disadvantaged students who harbour the potential to perform well within certain contexts, and identifying learners who would most likely be overlooked if not assessed in this manner.

Issues within dynamic assessment addressed in South African research

As discussed in the background to the development of dynamic assessment, differential item functioning and item response theory; costs and timing; and difference scores are problematic within the field of dynamic assessment but these issues have in fact been addressed by some

local research. De Beer (2000), for instance, has developed a locally normed dynamic assessment instrument which makes use of item response theory within a computer assisted environment. In this manner, costs are minimised by simultaneously assessing groups of learners and time is not a factor as may be the case with extended dynamic assessment interventions which emphasise long term mediation. The issues of difference scores (change scores) is more problematic and local researchers (Boeyens 1989a; De Beer 2000; De Villiers 1999) acknowledge that merely subtracting pretest scores from posttest scores is not always an effective means of assessing for change but recommendations have not always been forthcoming as to how best to tackle this issue (also see Cronbach & Furby, 1970).

Conclusions from dissertations, theses and published research

With dynamic assessment research, not all results are clear-cut positive or negative, as it lends itself more easily to qualitative interpretation. However, for the sake of clarity and economy of thought, an attempt has been made to assess these results as documented in the literature. Within this framework, research results have been classified into one of three groups, namely, generally positive results, generally negative results and both positive and negative results. Apart from the Boeyens (1989a) and the Potter and Jamotte (1985) studies that deal with theoretical underpinnings and static measures respectively and do not fall into any of the three categories mentioned, the following section considers the results of the remaining 29 studies.

Generally positive results

The findings of Adams (1994), Andrews (1996), Bradbury and Zingel (1998), Coosner (1999), De Beer (2000), De Villiers (1996), De Villiers (1999), Gewer (1998), Henley (1989), Lloyd

and Pidgeon (1961), Lopes, Roodt and Mauer (2001), Moll (1989), Murray (1988), Nunns and Ortlepp (1994), Shochet (1986), Sibaya, Hlongwane and Makunga (1996), Tayler (1996), Taylor (1999), Van Aswegen (1997), Zolezzi (1992) and Zolezzi (1995) can all be considered generally positive; and, after the general limitations of all the studies are taken into account as well as the few negative findings, these studies show that dynamic assessment is most assuredly an approach not to be ignored. Of all the studies, 21 of 29 (72%) are generally positive (in terms of dynamic assessment being able to predict performance to the same degree as or better than conventional tests).

Generally negative results

The findings of Engelbrecht (1999) and Hoffenberg (1988) can be considered generally negative in terms of dynamic assessment not being able to predict performance to the same degree as or better than conventional tests. After the limitations of both studies are taken into account as well as the few positive findings in these two studies they do not evidence encouraging results for the further use of dynamic assessment specifically when making use of the Learning Propensity Assessment Device (LPAD) with gifted populations and when predicting academic success at a multicultural tertiary institution using the Ability, Processing of Information and Learning Battery (APIL) test battery. Thus, of all the studies 2 of 29 (7%) are negative.

Both positive and negative results

The findings of Boeyens (1989b), Gaydon (1988), Lipson (1992), Miller (1998), Nel (1997) and Shochet (1994) can all be considered both positive and negative in terms of results evidenced

within the dynamic assessment field. These studies offer cautiously encouraging results. Of these studies 6 of 29 (21%) evidence both positive and negative results. The encouraging conclusions in these studies (even though negative findings did result) can also be considered as partially supporting research in the field of dynamic assessment. The positive results in these studies include the identification of different types of learners who may or may not benefit from learning potential tests (Boeyens, 1989b) as well as evidence which suggests that exposure to training (via mediation) within testing sessions allows for better pre- to posttest transfer score results (Gaydon, 1988). Certain sub-tests of the LPAD do correlate with certain school subjects (Lipson, 1992) and if culture-fair testing is a preferred route which educational institutions may wish to follow, it has been shown that dynamic assessment batteries (such as the APIL) should be used as initial tools before static assessments are used (Nel, 1997) or that dynamic assessment tools be used in combination with other static assessment tools (Shochet, 1994).

Negative results are also evident in these findings. Boeyens (1989b) for instance warns against the broader applicability of the learning potential test, stating that the predictive validity may only be useful in certain cases where students can benefit and make use of the mediated lessons. Also, the effectiveness of mediation as a strategy used when assessing in a dynamic manner is questioned by Gaydon (1988) whose results are inconclusive about whether mediation was indeed effective. Another negative finding is stated in the study by Shochet (1994), who states that the degree to which a student is modifiable will not necessarily predict or constitute academic success. Lastly, in Lipson's (1992) study it was stated that although the LPAD was a predictor of academic success, a static measure was better at predicting performance.

Conclusions from informal interviews

Of the 36 tertiary institutions that were contacted, dynamic assessment procedures were in place at five institutions; one institution revealed that dynamic assessment was being considered for possible future use; one institution made use of a procedure which was not necessarily dynamic in the strictest sense of the definition but was assuredly veering in the direction of dynamic assessment, and three institutions revealed having implemented dynamic assessment procedures but were no longer doing so for various reasons, but mainly due to costs and time intensiveness.

This represents a quantitative finding of 27% of tertiary institutions that have either made use of dynamic assessment in the past or who are currently involved with the use of dynamic assessment. Three institutions, the University of the Witwatersrand, the University of Natal and the University of Cape Town in particular, have contributed more (in terms of research) than the remaining seven. These three institutions have contributed very useful information which combines both positive and negative results. Of the remaining institutions, most have implemented or are in the process of implementing alternative admissions programmes; however, these are not in the field of dynamic assessment. In sum, a few institutions are aware of the potential use of dynamic assessment.

Summary

The most noticeable negative "themes" gathered from the myriad results within the field of dynamic assessment are of a methodological nature and are briefly discussed. A lack of proper instruction to research assistants (usually undergraduate or postgraduate students in Educational, Industrial and mainstream Psychology) in research projects (particularly emanating from Master's and doctoral studies) is evident, in that these students are rarely taught how to apply dynamic assessment mediation techniques effectively in this method of

assessment, despite assumptions that training has been given. Lack of sufficient time is an issue which many authors state is a problem.

The lack of an adequate sample size is an issue which is frequently encountered in these studies. If workable conclusions are to be made based on statistical defensibility, sample sizes should be compatible with the required statistical procedures that need to be carried out on the data. If the nature of the study and the results are dependent on adequate sample size and this is known from the outset, the sample size should not be compromised. It is perhaps unfair to expect researchers to develop and norm criterion tests as part of their research endeavours, however, making use of normed criterion variables (tests) on samples which are not the normed population skews the results and findings when learning potential tests are compared to these criterion measures. Although many studies make use of control groups not all studies do. Moreover, only a few studies make use of the Solomon Four Group Design which is a methodologically more rigorous approach when groups are compared.

The most noticeable positive "themes" gathered from the myriad results are of a general nature and are discussed briefly. Although individual administration of learning potential tests is the most desirable option, this manner of administration is clearly not viable at the moment in South Africa. Standardisation provides two positive aspects, namely, that a group of learners can be assessed at any one time, and issues of psychometric significance such as reliability and validity can be more easily monitored and measured, thus ensuring equity of test administration.

The Learning Potential Computer Adaptive Test (LPCAT) (de Beer, 2000), the Learning Ability Battery (LAB) (Tayler, 1996), the Ability, Processing of Information and Learning Potential Battery (APIL) (Taylor, 1999), the Transfer, Automatisation, Memory and Understanding Learning Potential Battery (TRAM) (Taylor, 1999) and the Conceptual Reasoning Test (CRT)[7] (De Villiers, 1999) are locally developed and normed learning potential assessment devices which are currently available, and in the recent past a dynamic assessment

battery was developed by the Human Sciences Research Council and normed on local South Africans.[8] There is a slow but progressive move away from administering foreign test material in a dynamic manner and a shift to using locally developed test batteries.

As educationally disadvantaged learners do not form a homogeneous group, emphasis has been placed on the need to differentiate between those who truly posses potential and happen to be classified as disadvantaged and those who are disadvantaged but do not possess the same levels of learning potential. This can be useful for selections and admissions to tertiary education institutions. Researchers have highlighted and acknowledged that dynamic assessment batteries do not always provide the desired amount and type of information needed in certain contexts but, in most instances, prediction of success is aided by dynamic assessment. Without the use of conventional tests, validity of prediction decreases, value of information is not as comprehensive and, in most instances, when used in combination, static and dynamic assessments yield more information that is of a better quality than when either is used on its own.

The majority of studies in this survey had tertiary and secondary education as their field of application where the main emphasis was placed on the prediction of academic success. However, research has also been conducted in a variety of working environments such as commercial companies. The field of application for dynamic assessment has traditionally remained in the arena of education, but this is not the exclusive domain of this approach. It is versatile enough to warrant even further research in other contexts in South Africa, as it has much to offer. Psychometric properties of tests such as reliability and validity issues are deemed important within conventional assessment; and dynamic assessment must seek to integrate these aspects into its own philosophical underpinnings in a way that satisfies the psychometric criteria of what constitutes a reliable and valid test while simultaneously remaining a form of assessment which espouses positive change (modification) as its primary

goal. One way in which this can be accomplished is to standardise dynamic assessment tools whilst remaining cognizant of the fact that norms do not play as large a role in dynamic assessment as they do in conventional assessments (De Beer, 2000; Taylor, 1999).

Conclusion

In order to progress within the field of dynamic assessment, a field which comparatively speaking, is quite young in South Africa when compared to Europe and the United States, the best choices as to test development can and should only be made on the basis of previous findings of similar tests in the field. Researchers and practitioners in this field are generally not aware of the large pool of data that is available on the topic. Early research in this field was often conducted in isolation and was somewhat fragmented. Consolidation of all dynamic assessment research results supports the case for dynamic assessment to be implemented and used on a wider scale. Research conducted without consultation or collaboration with other practitioners in the field may be detracting from the benefits of dynamic assessment research. Options such as the establishment of a dynamic assessment society and informed awareness of dynamic assessment in psychology can aid in making more practitioners aware of what the field has to offer.

Practical limits and constraints inhibit the implementation of pure dynamic assessment and even if implemented can only be sustained for a limited period of time. The psychometric defensibility of any new tests that are developed and marketed in South Africa is paramount to its eventual acceptance, and costs and administration duration issues are crucial elements in any test administration procedure. We propose a middle ground, between the extremes of both dynamic and classical assessment paradigms. However, this is an ongoing issue for debate and scholarship.

Dynamic assessment lends itself more easily to potential methodological faults, is vulnerable due to its precarious handling of psychometric issues, and can easily be exploited for unscientific purposes, more so than traditional tests. The goal should be to overcome these obstacles and aim for a wider use of dynamic assessment.

1 This is a view which is espoused by some South African researchers in the dynamic assessment field (such as De Beer, 2000; Zolezzi, 1992), often citing one or the other approach as insufficient in detailing information about certain cognitive functions. An approach which makes use of both sides is usually perceived to be the best alternative.

2 In fact even earlier than this decade, the issue of gain scores remained problematic. During the 1950s, international research relied almost exclusively on what was referred to as "gain scores". Lidz (1987b) cites Vernon (1954) as identifying some problems inherent in looking only at the pre-post test score differences, "…for example, the large standard deviations that led to unreliability for small groups (under 100), and the lack of uniformity of measuring units across research projects" (p. 8).

3 In most instances, tertiary institutions did not respond to the electronic mail questions, and thus had to be contacted via telephone. In some instances, both methods were employed at different times and different informants were spoken to (which also allowed the researcher to compare what others had said within the same institution). In a few instances, personal visits were made to enhance the information gathered. Telephone conversations tended to elicit the best information but this was not exclusively the case. Of note is the fact that almost all contact details for the various institutions were located on the various web pages, which were mostly accurate in their contact details.

4 A successful contact can be defined as either a telephonic, electronic or face-to-face interview with a knowledgeable person involved with the said institutions' academic admissions and selections department. In some instances more than one successful contact was made with an institution.

5 After several call-backs, this was unfortunately the only institution for which reliable information could not be obtained.

6 Here reference is made to the Teach-Test-Teach programme offered up until 1995 at the University of Natal but which is no longer implemented, primarily due to costs.

7 Contrary to De Villiers' (1999) use of the CRT as a learning potential test, De Villiers did state that the CRT may not necessarily be considered a dynamic test owing to the lack of a "test-teach-test" approach (personal communication, September, 2001).

8 This instrument was still being developed at the time of research and the name could thus not be divulged.

References

Adams, H.B. (1994). Teaching as assisting performance in the zone of proximal development: implications for teacher education. In A. D. Adey, P. Steyn, N. Herman & G. Scholtz (Eds), State of the art in higher education (pp. 1-14). Pretoria: University of South Africa.

Andrews, S.G. (1996). A small-scale investigation of the group administration of Feuerstein's learning potential assessment device. Unpublished M.Ed. dissertation, University of Natal, Pietermaritzburg.

Babad, E.Y. & Budoff, M. (1974). Sensitivity and validity of learning-potential measurement in three levels of ability. Journal of Educational Psychology, 66(3), 439-447.

Beals, R.L., Hoijer, H. & Beals, A.R. (1977). An introduction to anthropology. New York: Macmillan.

Boeyens, J.C.A. (1989a). Learning potential: A theoretical perspective. Pretoria: Human Sciences Research Council.

Boeyens, J.C.A. (1989b). Learning potential: an empirical investigation. Pretoria: Human Sciences Research Council.

Bradbury, J. & Zingel, J. (1998). Learning through peer interaction in a multi-cultural primary school classroom. South African Journal of Education, 18(4), 232-240.

Budoff, M. (1987a). The validity of learning potential assessment. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 52-81). New York: Guilford Press.

Budoff, M. (1987b). Measures for assessing learning potential. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 173-195). New York: Guilford Press.

Budoff, M. & Hamilton, J.L. (1976). Optimizing test performance of moderately and severely mentally retarded adolescents and adults. American Journal of Mental Deficiency, 81(1), 49-57.

Campbell, C. & Carlson, J.S. (1995). The dynamic assessment of mental abilities. In J.S. Carlson (Ed.), European contributions to dynamic assessment. Advances in cognition and educational practice (volume 3) (pp. 1-31). London: JAI Press.

Campione, J.C. (1989). Assisted assessment: a taxonomy of approaches and an outline of strengths and weaknesses. Journal of Learning Disabilities, 22(3), 151-165.

Campione, J.C. (1996). Assisted assessment: a taxonomy of approaches and an outline of strengths and weaknesses. In H. Daniels (Ed.), An introduction to Vygotsky (pp. 219-250). London: Routledge.

Campione, J.C. & Brown, A.L. (1987). Linking dynamic assessment with school achievement. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 82-115). New York: Guilford Press.

Campione, J.C., Brown, A.L., Ferrara, R.A., Jones, R.S. & Steinberg, E. (1985). Breakdowns in flexible use of information: intelligence-related differences in transfer following equivalent learning performance. Intelligence, 9, 297-315.

Carlson, J.S. & Wiedl, K.H. (1978). Use of testing-the-limits procedures in the assessment of intellectual capabilities in children with learning difficulties. American Journal of Mental Deficiency, 82(6), 559-564.

Coosner, C.D. (1999). Dynamic assessment - a practical strategy for school educators. Unpublished M.Ed. dissertation, University of Stellenbosch.

Cronbach, L.J. & Furby, L. (1970). How we should measure "change" - or should we? Psychological Bulletin, 74(1), 68-80.

Daniel, M.H. (1997). Intelligence Testing: status and trends. American Psychologist, 52(10), 1038-1045.

Day, J.D., Engelhardt, J.L., Maxwell, S.E. & Bolig, E.E. (1997). Comparison of static and dynamic assessment procedures and their relation to independent performance. Journal of Educational Psychology, 89(2), 358-368.

De Beer, M. (2000). The construction and evaluation of a dynamic, computerised adaptive test for the measurement of learning potential. Unpublished D.Phil. thesis, University of South Africa, Pretoria.

De Villiers, A.B. (1996). Disadvantaged students: analyzing the zone of proximal development. South African Journal of Higher Education, 10(1), 135-139.

De Villiers, A.B. (1999). Disadvantaged students' academic performance: analysing the zone of proximal development. Unpublished D.Phil. thesis, University of Cape Town.

Delclos, V.R., Vye, N.J., Burns, M.S., Bransford, J.D. & Hasselbring, T.S. (1992). Improving the quality of instruction: roles for dynamic assessment. In H.C. Haywood & D. Tzuriel (Eds), Interactive assessment (pp. 317-331). New York: Spinger-Verlag.

Elkonin, D., Foxcroft, C., Roodt, G. & Astbury, G. (2001). The use of assessment measures in various applied contexts. In C. Foxcroft & G. Roodt (Eds), An introduction to psychological assessment in the South African context (pp. 265-294). Cape Town: Oxford University Press.

Embretson, E.S. (1987). Toward development of a psychometric approach. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 141-170). New York: Guilford Press.

Embretson, E.S. & Reise, S.P. (2000). Item response theory for psychologists. London: Lawrence Erlbaum.

Engelbrecht, M. (1999). Leerpotensiaal as voorspeller van akademiese sukses van universiteitstudente. (Learning potential as predictor of academic success of university students). Unpublished D.Phil. thesis, Potchefstroom University for Christian Higher Education.

Feuerstein, R., Rand, Y., Jensen, M.R., Kaniel, S. & Tzuriel, D. (1987). Prerequisites for assessment of learning potential: the LPAD model. In C.S. Lidz (Ed.), Dynamic assessment: an interaction al approach to evaluating learning potential (pp. 35-51). New York: Guilford Press.

Gaydon, V.P. (1988). Predictors of performance of disadvantaged adolescents on the Soweto/Alexandra gifted child programme. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Gewer, A. (1998). Uncovering potential: dynamic assessment of non-verbal reasoning ability in educationally disadvantaged children. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Grigorenko, E.L. & Sternberg, R.J. (1998). Dynamic Testing. Psychological Bulletin, 124(1), 75-111.

Guthke, J. (1982). The learning test concept - an alternative to the traditional static intelligence test. The German Journal of Psychology, 6(4), 306-324.

Guthke, J. (1993). Developments in learning potential assessment. In J.H.M Hamers, K.Sijtsma & A.J.J.M. Ruijssenaars (Eds), Learning potential assessment: theoretical, methodological and practical issues (pp. 43-67). Amsterdam: Swets & Zeitlinger.

Guthke, J., Beckmann, J.F. & Stein, H. (1995). Recent research evidence on the validity of learning tests. In J.S. Carlson (Ed.), European contributions to dynamic assessment. Advances in cognition and educational practice (volume 3) (pp.117-143). London: JAI Press.

Hamers, J.H.M. & Resing, W.C.M. (1993). Learning potential assessment: introduction. In J.H.M. Hamers, K. Sijtsma & A.J.J.M. Ruijssenaars (Eds), Learning Potential assessment: theoretical, methodological and practical issues (pp. 23-41). Amsterdam: Swets & Zeitlinger.

Haywood, H.C., Tzuriel, D. & Vaught, S. (1992). Psychoeducational assessment from a transactional perspective. In H.C. Haywood & D. Tzuriel (Eds), Interactive assessment (pp. 38-63). New York: Spinger-Verlag.

Haywood, H.C. & Wigenfeld, S.A. (1992). Interactive assessment as a research tool [Electronic version]. Journal of Special Education, 26(3), 253-269.

Henley, S.J. (1989). An investigation of Feuerstein's theory of mediated learning experience with a disadvantaged community. Unpublished M.A. dissertation, University of the Witwatersrand, Johannesburg.

Hoffenberg, S.R. (1988). Effectiveness of the learning potential assessment device with high achieving adolescents from an advantaged community. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Jitendra, A.K. & Kameenui, E.J. (1993). Dynamic assessment as a compensatory assessment approach; a description and analysis [Electronic version]. Remedial and Special Education, 14(5), 6-12.

Kanjee, A. (2001). Cross-cultural test adaptation and translation. In C. Foxcroft & G. Roodt (Eds), An introduction to psychological assessment in the South African context (pp. 86-102). Cape Town: Oxford University Press.

Kozulin, A. (1990). Vygotsky's psychology: a biography of ideas. Cambridge: Harvard University Press.

Lidz, C.S. (Ed.), (1987a). Dynamic assessment: an interactional approach to evaluating learning potential. New York: The Guilford Press.

Lidz, C.S. (1987b). Cognitive deficiencies revisited. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 444-478). New York: Guilford Press.

Lidz, C.S. (1991). Practitioner's guide to dynamic assessment. New York: Guilford Press.

Lidz, C.S. (1992). Dynamic assessment: some thoughts on the model, the medium and the message. Learning and Individual Differences, 4(2), 125-136.

Lidz, C.S. (1997) Dynamic assessment approaches. In D.P. Flanagan, J.L. Genshaft & P.L Harrison (Eds), Contemporary intellectual assessment: theories, tests and issues (pp. 281-296). New York: Guilford Press.

Lidz, C.S. & Elliott, J.G. (2000). Introduction to dynamic assessment. In C.S. Lidz & J.G. Elliott (Eds), Dynamic assessment: prevailing models and applications. Advances in cognition and educational practice, volume 6 (pp.3-13). New York: Elsevier Science.

Lidz, C.S. & Macrine, S.L. (2001). An alternative approach to the identification of gifted culturally and linguistically diverse learners. School Psychology International, 22(1), 74-96.

Lidz, C.S. & Pena, E. D. (1996). Dynamic assessment: the model, its relevance as a nonbiased approach, and its application to Latino American preschool children. Language, Speech and Hearing Services in Schools, 27(4), 367-372.

Lipson, L.E. (1992). Relationship of static and dynamic measures to scholastic achievement of black pupils. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Lloyd, F. & Pidgeon, D.A. (1961). An investigation into the effects of coaching on non-verbal test material with European, Indian and African children. British Journal of Educational Psychology, 31(2), 145-151.

Lopes, A., Roodt, G. & Mauer, R. (2001). The predictive validity of the APIL-B in a financial institution. Journal of Industrial Psychology, 27(1), 61-69.

Miller, R. (1998). A follow-up of the academic performance of English first and second language students. South African Journal of Higher Education, 12(2), 167-175.

Minick, N. (1987). Implications of Vygotsky's theories for dynamic assessment. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 116-140). New York: Guilford Press.

Moll, I.C. (1989). Roots and disputes of cognitive developmental conceptions of teaching. South African Journal of Education, 9(4), 714-721.

Morgan, H. (1996). An analysis of Gardner's theory of multiple intelligence. Roeper Review, 18(4), 263-269.

Murray, D.A. (1988). Effectiveness of Feuerstein's learning potential assessment device in a South African context. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Neisser, U., Boodoo, G., Bouchard, T.J., Boykin, A.W., Brody, N., Ceci, S.J., Halpern, D.F., Loehlin, J.C., Perloff, R., Sternberg, R.J. & Urbina, S. (1996). Intelligence: knowns and unknowns. American Psychologist, 51(2), 77-101.

Nel, A. (1997). Die voorspelling van akademiese sukses binne konteks van 'n alternatiewe universiteitstoelatingsbeleid [The prediction of academic success within the context of an alternative university admissions policy]. Unpublished M.A. dissertation, Rand Afrikaans University, Johannesburg.

Nell, V. (2000). Cross-cultural neuropsychological assessment: theory and practice. New Jersey: Lawrence Erlbaum.

Nunns, C. & Ortlepp, K. (1994). Exploring predictors of academic success in Psychology 1 at Wits university as an important component of fair student selection. South African Journal of Psychology, 24(4), 201-207.

Potter, C.S. & Jamotte, A.N. (1985). African matric results: Dubious indicators of academic merit. Indicator SA 3(1), 10-13.

Ruijssenaars, A.J.J.M., Castelijns, J.H.M. & Hamers, J.H.M. (1993). The validity of learning potential tests. In J.H.M. Hamers, K. Sijtsma & A.J.J.M. Ruijssenaars (Eds), Learning Potential assessment: theoretical, methodological and practical issues (pp. 69 - 82). Amsterdam: Swets & Zeitlinger.

Sewell, T.E. (1987). Dynamic assessment as a nondiscriminatory procedure. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 426- 443). New York: Guilford Press.

Shochet, I.M. (1986). Manifest and potential performance in advantaged and disadvantaged students. Unpublished D.Phil. dissertation, University of the Witwatersrand, Johannesburg.

Shochet, I.M. (1994). The moderator effect of cognitive modifiability on a traditional undergraduate admissions test for disadvantaged black students in South Africa. South African Journal of Psychology, 24(4), 208-215.

Sibaya, P.T., Hlongwane, M. & Makunga, N. (1996). Giftedness and intelligence assessment in a third world country: constraints and alternatives. Gifted Education International, 11(2), 107-113.

Sijtsma, K. (1993a). Classical and modern test theory with an eye toward learning potential testing. In J.H.M. Hamers, K. Sijtsma & A.J.J.M. Rujssenaars (Eds), Learning Potential assessment: theoretical, methodological and practical issues (pp. 117 - 134). Amsterdam: Swets & Zeitlinger.

Sijtsma, K. (1993b). Psychometric issues in learning potential assessment. In J.H.M. Hamers, K. Sijtsma & A.J.J.M. Rujssenaars (Eds), Learning Potential assessment: theoretical, methodological and practical issues (pp. 175 - 194). Amsterdam: Swets & Zeitlinger.

Sternberg, R.J. (1991). Death, taxes, and bad intelligence tests. Intelligence, 15(30), 257-269.

Sternberg, R.J. (1997). The Triarchic theory of intelligence. In D.P. Flanagan, J.L. Genshaft & P.L. Harrison (Eds), Contemporary intellectual assessment: theories, tests, and issues (pp. 92-104). New York: Guilford Press.

Sternberg, R.J. & Wagner, R.K. (Eds). (1986). Practical intelligence: nature and origins of competence in the everyday world. Cambridge: Cambridge University Press.

Tayler, J. (1996). Assessment of the predictive validity learning ability battery. Unpublished M.A. dissertation, University of the Witwatersrand, Johannesburg.

Taylor, T.R. (1994). A review of three approaches to cognitive assessment, and a proposed integrated approach based on a unifying theoretical framework. South African Journal of Philosophy, 24(4), 184-193.

Taylor, T.R. (1999). Assessing learning potential and integrating it with cognitive skills training. Paper presented at the Institute for International Researchers conference, Compliant Assessment Techniques on 24 June.

Van Aswegen, M. (1997). The standardisation of a learning potential battery for the selection of poorly qualified employees. Unpublished M.Com. dissertation, University of Pretoria.

Vye, N.J., Burns, M.S., Delclos, V.R. & Bransford, J.D. (1987). A comprehensive approach to assessing intellectually handicapped children. In C.S. Lidz (Ed.), Dynamic assessment: an interactional approach to evaluating learning potential (pp. 327 - 359). New York: Guilford Press.

Zolezzi, S.A. (1992). Alternative selection measures for university undergraduate admissions. Unpublished M.Ed. dissertation, University of the Witwatersrand, Johannesburg.

Zolezzi, S.A. (1995). The effectiveness of dynamic assessment as an alternative aptitude testing strategy. Unpublished D.Phil. dissertation, University of South Africa, Pretoria.