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Evaluating an assessment battery for a multi-disability commercial college

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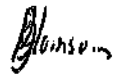
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- My husband, Dean, for his loving support, encouragement and patience.

DECLARATION

I hereby declare that this research is my own work. It is being submitted for the degree of Master of Education (Educational Psychology) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.



Glynda Blomson

on the assessment battery confirmed the need for learning potential to be tapped on the existing battery.

Another dimension of this study was determining perceptions of satisfaction with the existing assessment battery and course placement procedure as perceived by a multi-disciplinary team, college lecturers and potential college students. Overall, some dissatisfaction was experienced which was considered when recommendations about modifying the battery were made.

Recommendations for revising the existing assessment battery, based on the research findings, are proposed. Recommendations include suggestions for the introduction of a dynamic assessment component, a different course selection method, simplifying language in the battery, and including a situational assessment component.

The limitations of the study and recommendations for future research, are also discussed.

ABSTRACT

The present research study evaluated an unresearched assessment battery used to determine student trainability at a multi-disability commercial college.

The issues of validity - specifically criterion-related validity and content-related validity and dynamic assessment were the main focus of the study. Revisions to the assessment battery where necessary were recommended.

Fifty-two students from the multi-disability college formed the sample population for establishing the criterion-related validity of the assessment battery. Students assessment results were correlated with the number of credits they obtained on course completion using the Pearson Product Moment Correlation Coefficient. This research established that useful inferences about student trainability could be made from the existing assessment battery scores.

Establishing the content-related validity of the assessment battery was a two fold process. Firstly, course lecturers completed a self-administered questionnaire to determine what skills/ attributes were necessary for success in the four courses offered at the College. Secondly, a workshop was held with a multi-disciplinary team of professionals to determine what skills/ attributes were being tapped by the various sub-tests of the battery. It was established that twelve of the skills/attributes necessary for course success were not tapped on the existing assessment battery. Measures which tap these skills/attributes need to be included in the assessment battery so that its content validity can be established.

Given the controversy relating to standardised/static testing it was important to research the relevance and usefulness of the introduction of a dynamic assessment component to the existing battery. Dynamic assessment would allow for learning potential to be tapped. Analyses of variance were conducted to determine the relationships between the variables - race, educational level and type of disability with performance on the assessment battery. The significant relationships between educational level and performance and type of disability and performance

DEDICATION

This work is dedicated to my husband for his love, support and guidance.

EVALUATING AN ASSESSMENT BATTERY FOR A MULTI-DISABILITY COMMERCIAL COLLEGE

Glynda Blomson

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are not in themselves different kinds of validity. In optimal circumstances, evidentiary support for validity is gathered from all three categories (Osterlind, 1989).

For the purposes of this study, validity will concern the appropriateness, meaningfulness and usefulness of the specific inferences made from test scores.

In this study both the criterion and content related validities of the Access College assessment battery were investigated.

1.3.1.1 Criterion-Related Validity

Criterion-related validity is studied by comparing test or scale scores with one or more external variables, or criteria, known or believed to measure the attribute under study. Thus criterion-related validation procedures indicate the effectiveness of a test in predicting an individual's behaviour in specified situations (Anastasi, 1982). The criterion (a direct and independent measure of that which the test is designed to predict) may, for example, be subsequent job performance for a mechanical aptitude test, associates' ratings for an anxiety test or actual college grades for a scholastic aptitude test (Anastasi, 1982).

The key inference that is extrapolated from a statistically significant criterion-related validity study is that there is a dependable relationship in the particular setting between the predictor test (or tests) and the criterion measure. Thus, the concern is not with what the test measures but its predictive value (Wainer & Braun, 1988).

A test high in criterion-related validity is one that helps researchers make successful decisions in assigning people to groups.

Access College was concerned about the criterion-related validity of their assessment battery. Concern was expressed as to whether the assessment battery adequately distinguishes between students who will succeed during course training and those who will not. Thus uncertainty existed as to whether valid inferences about trainability and

- The first point is that this description refers to inferences that are made rather than to direct measurements.

- Secondly, the description notes that a given instrument is not itself validated, rather it is the interpretation of scores that is evidence of validity. Thus, test validation is the process of gathering evidence for a specific interpretation of the scores yielded by a given test. This important aspect of validity is often overlooked. It is a misconception that validity is a particular phenomenon whose presence in a test may be concretely evaluated.

- The third point made is that test validation is a process of gathering evidence.

As is noted in the quoted description, there are many methods for accumulating evidence that is able to justify particular inferences. Some methods for gathering evidence may corroborate data gathered by other methods. Conversely, some evidence may dilute the effect of, or negate other types of support for, specific inferences. In addition, some evidence may be appropriate for certain kinds of inferences but not for others.

The fourth important point made is that validity is not like an on-off switch, but is expressed in degrees. A large amount of evidence may support a high degree of validity for certain inferences, a moderate amount of evidence supports inferences only moderately, and little evidence supports inferences only weakly. Finally, the description of validity specifies that it is a unitary concept. This means that there are not different "types" of validity. What had formerly been thought of as construct validity, content validity, and criterion-related validity, each with independent criteria, are now considered to be merely convenient categories of evidence for a single notion of validity. Validity is thus a single notion.

As a unitary concept, validity may include several different types of evidence. During the 1940's and 1950's validity was classified into four main types: content validity, predictive validity, concurrent validity and construct validity. In 1966 concurrent validity and predictive validity were combined and referred to as criterion related validity (Wainer & Braun, 1988). These categories may be further delineated for convenience, but they

Anastasi defines validity as "the extent to which measurements are useful in making decisions relevant to a given purpose" (1988 p.289).

For Mehrens & Lehmann validity can be best defined as "the extent to which certain inferences can be made from test scores or other measurements" (1987 p.74).

Messick (1989 p.131 in Bennett & Ward, 1993 p 45) defines validity as "an integrated, evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment".

Kerlinger (1986 p.417) states that validity "is epitomised by the question: Are we measuring what we think we are measuring?".

A fuller description of validity is provided in the standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1985 p.9 in Osterlind, 1989 p.67):

> "Validity is the most important consideration in test development. The concept refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores. Test validation is a process of accumulating evidence to support such inferences. A variety of inferences may be made from scores produced by a given test, and there are many ways of accumulating evidence to support any particular inference. Validity, however, is a unitary concept. Although evidence may be accumulated in many ways, validity always refers to the degree to which that evidence supports the inferences that are made from the scores. The inferences regarding specific uses of a test are validated, not the test itself".

A number of important points are highlighted in this quote. They are as follows:

psychometrics. Serious work in clarifying the concept, however, did not begin in earnest until 1950. Since then it has occupied the continuing attention of some of the prominent people in this field (Wainer and Braun, 1988).

According to Hursh & Kerns (1988) unless a test demonstrates validity it is of little use to the evaluator.

Understanding Validity

Different writers choose to define validity in different languages. Before 1950, studies of the validity of tests and validity data were generally developed to justify a claim that a test is useful for some particular purpose (Wainer & Braun, 1988).

A commonly cited definition of validity was expounded in 1971 by Cronbach in an article titled "Test Validation". He described test validation as a process in which evidence is collected by the developer of a test to support the types of inferences that may be appropriately drawn from test scores. Cronbach's emphasis in his definition of validity was not on the instrument itself, but rather on the interpretation of the scores yielded by a test (Wainer & Braun, 1988).

This definition of validity was in contrast to Garett's traditional wording, in which he simply described validity as "the fidelity with which a test measures what it purports to measure" (Garett, 1937 p.324 in Osterlind, 1989 p.66). Whilst Garett's definition is accepted by some persons as the definition of validity, it is clearly more limited than Cronbach's and reflects a difference in emphasis.

Subsequently, Cronbach (in Wainer & Braun, 1988) addressed the changing nature of validity by describing it as a concept to be viewed from differing perspectives. One may look at validity from varying perspectives by examining the following definitions by other researchers.

The significance of employment for a person with disabilities is thus well documented. It follows that correct selection and training of people with disabilities to ensure employability is central. This study focuses on the issue of appropriate assessment of those with disabilities for suitable training. Accurate assessment and selecting appropriate training is the first step in promoting the gainful employment of those with disabilities. The focus of this study is thus the issue of assessing those with disabilities for vocational training.

1.3 Test Construction

According to Holmen & Docter (1972) the major characteristics of a good test are validity, reliability and accurate norms. Synonyms for reliability are dependability, stability or consistency. Kerlinger (1986 p.405) defines reliability as the "accuracy or precision of a measuring instrument". The establishment of norms is at the heart of test standardisation (Holmen & Docter, 1972). Tests have no predetermined standards of passing or failing. For most purposes, an individual's test score is interpreted by comparing it with the scores obtained by others on the same test. As its name implies, a norm is the normal or average performance (Anastasi, 1982). Validity will be discussed in greater detail as it is central to this study.

1.3.1 Validity

According to Hursh & Kerns (1988) the primary criteria for determining the usefulness of a test is its validity. The subject of validity is complex and controversial (Kerlinger, 1986). Presently, allegations of bias in psychometric testing is a topical issue. It has been argued that psychometric tests are not neutral and their validity is thus questionable. The debate focuses on test bias related to race and sex.

Conceptions of validity have changed several times in the last thirty-five years, but one conception, that validity itself is pre-eminent among the various psychometric concepts, remains constant. Validity has always been considered as a fundamental issue in

According to Gibson & Kielhofner (1984) people with disabilities have a high rate of unemployment and face challenges in securing employment as both a direct and an indirect result of being disabled.

Disability directly affects work performance insofar as it impairs some functions which are vital in some jobs (like mobility, memory, concentration or communication). Compensatory techniques are available and seldom very expensive, but employers tend to be ignorant of these and have a limited perception of the "normal" way of working. Disabled work-seekers themselves seldom have sufficient knowledge and self-assurance to suggest modifications or adaptations to job related processes. Disability also directly affects work ability insofar as it often interrupts established careers and enforces a period of unemployment, which can lead to difficulty in re-entering the job market (Bleach et al in Randall, 1993).

Generally, there is a tendency for employers to focus on the disability of the applicant rather than on his ability to perform the job. This focus on the negative is underscored by the lack of awareness on the part of employers as to the abilities and potential of disabled employees (da Avila-Coelho, 1994). Thus, disability indirectly affects work ability because of social attitudes and responses to people with disabilities.

Access to opportunities in the world are limited by prejudice, fear, misunderstanding and the tendency for society to divide itself into "us" and "them" and to link the concepts of disability and illness. This can be exacerbated by the internalisation of these attitudes and beliefs by people with disabilities (Palmer & Gatti, 1985).

Disability (particularly if severe or dating from early years) often results in a relative lack of opportunities for education and for life experience. The resultant lack of diverse experiences can hinder the development of a working adult's identity, functional independence, time management skills and other crucial abilities. This lack of foundational skills reduces the chances of securing or successfully retaining employment (Randall, 1993).

component of an adult's identity (Hayes & Nutman, 1981). In the absence of meaningful work, the person may suffer a range of psychological symptoms which invariably affect the sense of personal power and belief that one can impact on the environment. Prolonged periods of unemployment may lead to a crystallization of powerlessness, hopelessness and depression (da Avila-Coelho, 1994).

Nosow and Form (in Stubbins, 1977) propose that work continues to be the driving force giving direction and meaning to contemporary living. Further, they insist that work occupies a central role in the lives of most people as it is work that provides social continuity and status to the individual and his family.

Younghusband (1970 in Jowett 1982) suggested that there are two criteria by which successful adaptation to disability is judged in adult life: the ability to earn a living and the ability to lead an independent life.

Botha (1993) states that training and subsequent employment does much for the person, enhancing their lives so that they can let go of their fears, despair and hopelessness and be independent.

1.2.3 Unemployment Rates

The unemployment rate among South African people with disabilities is notoriously high. Hamilton et al (1989) reported that in 1985, 72,6 percent of the total disabled population was found not to be economically active, as opposed to 38,8 percent of the total population. Uys et al (1990) found that of the total disabled population, only 0,26 percent were productively employed in the open labour market. The unemployment rate for the disabled person is thus substantially higher than the unemployment rate for the non-disabled population. This corresponds with international trends.

There are many reasons for the high unemployment rate of the disabled.

Essentially, one is speaking of millions of people (Uys et al, 1990).

1.2.2 Work and the Disabled

The importance of meaningful work for the psychosocial well-being of the individual is well accepted (Jowett, 1982).

Charitable handouts do not solve the problem. Disabled people demand jobs, not charity. Increasingly vocal, they reject the role society has traditionally allotted them and claim their rights as ordinary citizens, as workers and as respected members of their communities. They refuse to accept that disability should lead to social and economic deprivation and insist on being given equal opportunities in school, college, employment and social life (Momm & König, 1989).

The cultural meanings attached to work seem to affect the availability and degree of legitimation of the disabled role. In a society where work serves only an instrumental function, the disabled role would be more likely to be institutionalised. On the other hand, in a society where work is defined as a moral duty, or as an end in itself, a legitimated role for the disabled is less likely to evolve. In this case, the withdrawal from work involves much more than an economic loss, it involves a most important way of meaningfully relating to the larger society. Consequently, since the work role has this latent function, disability results in a twofold loss, a diminution of income and the loss of an important means of integration into a larger network of social relationships (Stubbins, 1977). As Brown (1986 p.187 in da Avila-Coelho, 1994 p.2) states "Work is an essential aspect of a man's life since it is that aspect of his life that binds him to society". The statement implies that without work, a person is "unbound" to the broader society. He stands isolated and apart - essentially unconnected to the mainstream.

Work, besides providing income, serves to meet a number of inherent personal needs. It is an intentional activity that engenders a sense of purpose, provides avenues for creativity and mastery of the environment, maintains daily structure and is an integral

Coelho, 1994).

There is a tendency to use the terms "handicap" and "disability" interchangeably. The distinction between these two terms is defined by the United Nations, in a similar vein to the World Health Organisation, as follows (in Stopford, 1987 p.1):

Handicap "A function of the relationship between disabled persons and their environment .... Handicap is the loss or limitation of opportunities to take part in the life of the community on an equal level with others."

Disability "Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being."

An impairment can be defined as "lacking part or all of a limb, or having a defective limb, organ, or mechanism of the body."

Thus disablement is the loss or reduction of functional ability and handicap is the disadvantage or restriction of activity caused by the disability. Handicap may be physical, social or emotional.

1.2.1 Incidence of Disability in South Africa

According to the Human Sciences Research Council/National Training Board Report, published in 1989 (Hamilton et al, 1989), approximately 3,85 million South Africans were classified as disabled. The prevalence was estimated to be 12,7 percent of the population (Uys et al, 1990). This statistic underestimates the enormity of the situation. Firstly, the lack of a central register may preclude many from becoming known to the authorities. Secondly, this statistic excludes the hard of hearing and partially sighted (Hamilton et al, 1989). In addition to the "usual" causes of disability, eg. motor vehicle accidents, the heightened levels of violence may magnify this figure dramatically.

1.1.2 Assessment

To be accepted into training at the College new students are required to complete an assessment battery to determine trainability. The assessment battery consists of a number of specially selected sub-tests which are employed together to predict trainability and thus the potential for course completion.

The Development and Marketing Officer of the College was concerned about the Access College assessment battery. He felt assistance was required in determining whether the present assessment battery for potential students was valid A further concern was that the battery was very static and did not contain any dynamic assessment components and therefore it did not tap learning potential. An additional concern was that the battery was not very "user friendly". The occupational therapist at the College, who administers and scores the battery, shared these concerns.

The focus of this research was thus the evaluation of the validity of the assessment battery and investigation into the possible inclusion of a dynamic assessment component. Perceptions regarding the applicability and performance ("The levels of satisfaction") of the assessment battery and course selection procedure were explored and the strongest measures of the skills/attributes deemed necessary for course success were determined.

1.2 Definitions of Disability

According to Bolles (1991) the term "disability" refers to any impairment of some major life activity that lasts six months or longer. Usually it indicates a permanent impairment. Classification includes categories of hearing impairment, visual impairment, physical impairment such a paraplegia, amputation, epilepsy, medical disorders, neurological disorders, cerebral vascular accidents, learning impairment and psychiatric disabilities. The severity varies from individual to individual, some of whom require constant care. It must be noted that definitions simply label the impairment - they do not and cannot define the complexity of the human being with his particular capabilities (da Avila-

The minimum College admission requirement is a Standard Eight or Form Three. Applicants with less than this educational level are, however, considered on merit. Student motivation is an important consideration in terms of admission.

The College accepts students of all races with any type of disability. This includes paraplegia, quadriplegia and other orthopaedic conditions, epilepsy, traumatic brain injury, learning disabilities, blindness, deafness, psychiatric and emotional conditions. An average intelligence is a pre-requisite for admission although no formal intelligence testing is done.

Students between the ages of sixteen to forty-five are eligible for admission, although persons over forty-five years are considered on merit and circumstances. The College is registered with the Department of Manpower, which subsidises forty-five percent of the students.

On completion of training, students are awarded either a certificate or a diploma. This is dependent on their performance during training and the number of credits obtained. Students who obtain sixteen credits or more on completion receive a diploma and students who obtain fifteen or less credits a certificate.

The College employs six part-time lecturers and four full-time lecturers. The medium of instruction at the College is English. The College can accommodate ninety students with disabilities at one time.

In 1993/4, two hundred students with disabilities enrolled at the College for training. The typical student is described as being in his/her mid-twenties having a Standard Eight or Nine education with some previous working experience. Most students are physically or learning disabled, and a quarter come from outside Gauteng to attend Access College.

1. INTRODUCTION

1.1 Access College - The need for research into an existing,unresearched assessment battery

1.1.1 Access College

Access College is a multi-disability commercial college in Randburg, Johannesburg. The College defines disability as any restriction or lack of ability to perform an activity in the manner or within the range considered normal due to physical, cognitive or emotional impairment. Their definition excludes persons with below average intelligence. The College's mission is to empower its students to lead full lives. It was founded by an occupational therapist in 1983 when it opened its doors to its first twelve students.

The College provides commercial training for people with varying disabilities. Their intake includes people with physical, emotional and cognitive deficits. Full-time vocational training is offered in the following four courses - computer operations, junior secretarial, business administration and personal enrichment.

Courses are limited to a maximum of twelve students so training is very individualised. Each of these four courses extends over a period of six months of training. Each course covers a number of subjects and begins with a prevocational programme which introduces students to essential life skills.

Since its inception, Access College has identified its role in the community as that of "developing" its students towards self-fulfilment and self-actualization. It therefore rejects the concept of dependency by restoring the right of self-determination, decision making and problem solving in its students. It concentrates on developing self-confidence, self-awareness and a positive self-image through achievement of goals. The long-term aim of the College is to equip students with the necessary skills to gain employment in the open labour market.

Work sample evaluation is usually a time-limited process. The individual is exposed to a range of jobs in a short time providing exposure to vocational alternatives.

Performance on concrete tasks provides direct and immediate information to the tester and in turn, immediate feedback to the individual about his performance.

Several constraints in using work samples need to be considered. Often the norms group is inadequate or poorly represented. Further, the tester must be aware that performance on the work sample does not reflect or predict performance in competitive environments. The work sample is a simulation and does not contain the range of social and physical dema[illegible]f real work (Hursh & Kerns, 1988).

Work sample evaluations are relatively short and may penalise testees who require longer periods of time to learn a task before skill may be demonstrated to potential.

Work samples represent a large initial expense, one that is often too large for individual agencies. Also, work samples may become obsolete in today's rapidly changing technology.

There are often disadvantages specific to individual work samples that are of particular concern to disabled students. For example, a work sample situation may be filled with material that can overwhelm testees with selected perceptual or organisational deficits. Other work samples may instruct the testee through visual or slide tape formats that students have difficulty following due to visual, auditory or motor disabilities. Some work samples may rely heavily on strict timing procedur s which may disadvantage the disabled student (Hursh & Kerns, 1988).

1.4.3 Situational Assessment

Situational assessment or job site evaluation involve placing the testee in a realistic setting, rather than the standardised format of a work sample. Here the testee is not only

evaluators are hesitant to modify tests, due to heavy reliance on norm group interpretation.

Due to the relatively short period of psychometric testing, internal factors, such as anxiety, concentration or motivation, which are often not controlled, have a more serious effect on the test situation than they would have in the longer period of the simulated work evaluation situation. Similarly, the pencil and paper testing situation is very familiar to the student and usually represents negative rather than positive experiences. This is very true for the learning disabled student (Vogel & Adelman, 1993).

1.4.2 Work Samples

Work samples are standardised, well-defined work activities that use tools, material equipment, and supplies found in an actual job. Testees actually "try out" selected job functions while being observed by a tester. (Anderson and Hohenshil, 1990). Thus, this type of testing approximates a real life activity more closely than psychometric testing. The Access College assessment battery contained a few work sample assessment sub-tests.

The structure of the work sample, in terms of standardised administration, demonstration and production provides the opportunity to observe behaviour in a relatively controlled setting. This allows the tester to compare performance against a criteria, identify specific skill deficits and strengths that limit or enhance productivity and identify vocational abilities beyond standardised scores.

Since work samples have high face validity, individuals respond more naturally to testing. Testing activity is accepted as significant to vocational planning. This results in greater acceptance of evaluation outcome.

Work samples emphasize psychomotor ability rather than verbal ability. This may be significant for the disabled student who is better able to perform hands-on tasks.

that the individual or group being tested is similar to the sample or population on which the test was normed.

Critics of tests used with students with disabilities point out that few tests are normed on samples having disabled-testee-population characteristics and that such tests have limited usefulness. In vocational evaluation, however, a realistic understanding of the individual's performance or vocational potential is gained if the person is compared with general population norms when making decisions about employability; it is important to compare the individual's performance level against the performance expectations present in the competitive environment (Hursh & Kerns, 1988).

Another limitation of using psychometric tests with disabled students is that most psychometric tests require a high level of verbal fluency, reading or academic ability which disabled students may not have. Standardised administration methods using written or verbal instructions and multi-step directions are inappropriate for some students with disabilities such as the learning disabled and may result in unrepresentative performance. Individuals with disabilities such as severe hearing impairments may have had isolated educational experiences and may demonstrate inadequate educational and communication skills required for many psychometric tests.

Most psychometric tests provide a one trial learning administration format and do not allow the tester to make observations about learning ability or potential.

Much of the content of psychometric tests is aimed at adolescents rather than potential "workers".

The nature and demands of the test situation usually differ greatly from the nature and demands of the work situation and such information obtained from the psychometric test may be meaningless.

Modifications to testing procedures usually are not stated clearly in test manuals and

item is unaffected and statistically independent from a response to any other test item. Thus, local independence presumes that an examinee approaches each test item as a fresh problem without hints or added knowledge gathered from responding to any other test item. With local independence violated, a proper interpretation is not possible. This criterion was met in the Access battery.

- A sixth criterion for constructing good test items is that they be well written, following uniform style or editorial standards. These standards cover grammar, diction, usage, spelling, punctuation and syntax. As the Access College assessment battery was drawn from many different sources, this was a particular area of concern needing investigation.

1.4 Vocational Assessment Components and the Disabled

Vocational assessment consists of three primary evaluation components: psychometric tests, work samples and situational assessment (Hursh & Kerns, 1988). The assessment battery at Access College consisted largely of psychometric tests with very limited work samples and no situational assessment component.

1.4.1 Psychometric Assessment

Psychometric tests are defined by Hursh & Kerns (1988) as pencil and paper tests. Super and Crites (1962, p.78) state that a pencil and paper test "requires only marking responses to written or pictorial questions on a piece of paper". The Access College assessment battery consisted primarily of this type of testing.

Psychometric tests have been widely used in special education but have questionable use in vocational evaluation with disabled students. A major limitation of psychometric tests is inadequate norm groups. Here the performance of the individual is compared to the performance of a group of similar individuals on the same test. A basic assumption is

Despite the difficulties in meeting fully the assumption of unidimensionality, it is important for two reasons. First, without it, the interpret..tion of test items would be profoundly complex. Theoretical work has explored the possibility of interpreting test items in multi-dimensional tests, however, this work is preliminary, limited in scope and of no practical application at this time (Osterlind, 1989).

A second reason for the importance of the unidimensionality assumption is that it is widely accepted by test constructors as a conceptual notion.

'her con. derations about the assumption of unidimensionality are tanding that it is contextually related (and not an absolute w.thin a pa.:.ular test item) and understanding there are some cases where it does not apply, such as in some timed tests. Regarding the first consideration, a given test item does not possess the characteristic of unidimensionality once and forevermore. A test item may be unidimensional for one test and not for another.

This concern about context becomes particularly acute when tests are translated from one language to another or are used with testees whose cultural background is different from the cultural background of the group for whom it was originally written. The concern would also apply when tests designed for abled bodied people are administered to disabled people.

On investigating the Access battery it was evident that test items were not unidimensional and that subtests measured many constructs. Thus the issue of unidimensionality needed attention.

The second assumption for test items is local independence. In practice, local independence means that a testee's response on any particular test

variety of factors, some of which cannot be identified with precision) and bias (the systematic distortion of measurement). Although the exact source of bias in test items may not be isolated, the fact that it occurs can be discovered. Following the discovery of bias in test items, the source of bias can usually be reduced or even eliminated by adjusting particular items or discarding them. Errors of measurement, whether random or systematic, are issues of reliability.

A possible unwanted source of error in the Access assessment battery needing exploration was the confusing wording in items.

- A fourth criterion for good test items is that the format be suitable to the goals of the test. Straightforward, uncomplicated goals generally require simpler item formats than those necessary for assessing complex goals. Both the length and language in the Access battery were areas needing investigation.

- A fifth criterion for constructing good test items is that each item meet specified technical assumptions. These assumptions are psychometric concerns of measurement theory. Two important assumptions should be highlighted:

  - The first assumption underlying a mathematical model for test items is that the items are unidimensional. Unidimensional means that a testee's response to a test item can be (by inference) attributed to a single trait or ability. Thus a test item should be designed to measure one, and not more than one, psychological construct.

  - In practice, the assumption of unidimensionality can never be fully met as there are too many unknown or uncontrollable factors which affect the testee's response, making it impossible to state with absolute certainty that a particular response was because of a particular psychological construct. Such unknown or uncontrolled factors might include test anxiety, degree of motivation of the examinee, and many more.

guidelines. At Access College, for example, the student population is diverse in terms of educational background, disability and language group. These circumstances influence the choice of the test items in the battery.

Despite the difficulties mentioned above, certain criteria for good test items have been accepted (Osterlind, 1989). These are as follows:

- The first criterion for constructing good test items, and the most important, is that there must be a high degree of congruence between a particular item and the key objective of the total test. Simply stated, the primary question is "How well does a particular test item match its intended objective?" In relation to the Access College battery one would need to look closely at whether test items match those skills/attributes deemed necessary for trainability in the training courses offered.

  This congruence criterion is the item writer's primary consideration because it is a key determinant of validity, is the most important consideration in test construction and will influence the valid interpretation of a test's scores.

- A second criterion for constructing good test items is closely allied with the first. This criterion is that the key objectives must be clearly defined. If a test item is to meet the first criterion, it must be matched to a defined entity. The less ambiguously a domain of content or psychological construct is described, the better the chance that the congruence criterion can be met. This was a particular problem in this study as criteria were very loosely defined.

- A third criterion of constructing good test items is that each item's contribution to measurement error in a test's scores should be minimized as far as possible. This means that there should be a systematic consideration of the degree to which test items may contribute to errors of measurement.

  These errors may be of two types: random error (which could be caused by a

A further reason why constructing good test items is difficult is that the task challenges the writer to be creative. Imaginative and novel ways of expressing ideas can be useful. Further, creativity includes an intuitive appreciation of how a particular test item may be perceived by testees.

Different formats are available to the writer of test items. The format for a test item is simply its design and layout. Some of the most repeatedly seen item formats are multiple choice and true-false questions. This is true of the Access College battery which contained sixteen multiple choice type questions.

Test item formats fall into two broad types: selected-response, or constructed-response (also known as supply type). In the first type the testee is given the correct solution to the problem as well as alternative solutions. By contrast, in constructed-response test items alternative solutions are not presented by the tester at all; the testee must provide (rather than submit) the perceived correct response. Both types of formats were used in the Access College battery.

1.3.2.1 *Criteria for Good Test Items*

According to Osterlind (1989) criteria for good test items are difficult to state in absolute terms. One reason for difficulty is that constructing test items demands technical skills that are complex. In addition to technical competence, the skilled item constructor must also possess a penetrating understanding of how testees respond to test items, including an awareness of how a particular test item may be perceived by different testees. Popham in Osterlind (1989), describes writing test items as an art which points to the element of creativity in constructing test items.

Another factor that makes it difficult to specify criteria for constructing good test items relates to the specific circumstances in which a test arises or the purposes for the test. Those circumstances or purposes dictate that the test item writer follow certain

1.3.2 Constructing Test Items

A test is a systematic procedure in which the individuals tested are presented with a set of constructed stimuli to which they respond, the responses allowing the tester to assign the testees numerals or sets of numerals from which inferences can be made about the testees' possession of whatever the test is supposed to measure. Thus, in short, one could say that a test is a measurement instrument (Kerlinger, 1988).

Constructing test items is a task of enormous importance and one fraught with difficulty. The task is important because test items are the foundation of written tests of mental attributes and the backbone of most assessment instruments. Being able to draw valid and reliable inferences from a test's scores depends greatly upon attention paid to the construction of test items. If a test's scores are to yield valid inferences about a testee's mental attributers, its items must reflect a specific psychological construct or domain of content. If it does not, the test item lacks meaning and purpose (Osterlind, 1989).

According to many authors (Osterlind, 1989; Bormuth, 1970 (in Osterlind); Nitku, 1984 (in Osterlind)) there is little information about planning, designing and writing test items.

"If a test is made up of items haphazardly written by untutored persons, the resulting decisions could be erroneous. Such errors can sometimes have serious consequences for individuals" (Osterlind, 1989 p.2). This statement may have pertained to the assessment battery used at Access College which appeared to have been compiled in an unsystematic manner.

The task of constructing good test items is difficult because writing precisely and succinctly is challenging. It is important that the test item writer does not inadvertently convey hints, biases, opinions or confusing information. In the Access College battery one of the perceived concerns was that the language in the sub-test instructions lacked clarity and created confusion.

such collections no matter how large and how "good" the items, is always in question (Kerlinger, 1986).

Content validation is basically judgemental. The items of a test must be studied, each item being weighed for its presumed representativeness of the universe. This means that each item must be judged for its presumed relevance to the property being measured. Thus the domain to be tested must be systematically analysed to make certain that all major aspects are covered by the test items, and in the correct proportions. Usually other "competent" judges should judge the content of the items (Kerlinger, 1986).

Thus, content validity relies on the plausibility of a measuring strategy in the eyes of researchers or their critics. Trumbo (1976 p.63 in Hursh & Kerns, 1988 p.95) stated that "content validity is a qualitative evaluation based upon logical analysis and expert judgement, rather than on a statistical analysis". The more complicated and disputable the concept, the more any judgement about the content validity of a measure is likely to reflect the predispositions, status, and role of the researcher (Williamson et al, 1982).

It is also important to guard against any tendency to over-generalise regarding the domain sampled by the test (Anastasi, 1982).

Hursh & Kerns (1988) describe face validity or content validity as a separate and distinct methods of describing test validity. They describe it as the subjective appraisal about whether a test actually will measure what it is supposed to and thus overlaps with descriptions of content validity provided by other authors (Anastasi, 1982; Williamson et al 1982).

Hursh & Kerns (1988) make the important point that face validity can be a desirable feature of vocational assessment by making the test look more related to job/course requirements. The assessment process is more likely therefore to be accepted as realistic and important by the testee. Based on this belief, he or she may invest more energy and motivation in test performance.

importance or value of implications of scores as a basis for action, and the functional worth of scores in terms of social consequences of their use. These manifold aspects of validity have been integrated in the following unified view: "Validity is an overall evaluative judgement founded on empirical evidence and theoretical rationales, of the adequacy and appropriateness of inferences and actions based on test scores" (Messick, 1980 in Wainer & Braun, 1988). As such, validity is an inductive summary of both the adequacy of existing evidence for and the appropriateness of potential consequences of test interpretation and use.

According to Landy (1992) validation studies represent an endangered species and there are presently few publicly available validation studies. Recent validation studies include research by McClanahan & Holmbeck, 1992; Prewett & Farhney, 1994; Vevea et al, 1993 and Lavoie & Charlebois, 1994. Landy (1992) feels that validation studies are essential and he proposes that more such studies need to be done. This research study is thus in keeping with the great need for more validation studies.

1.3.1.2 Content-Related Validity

Content validity is sometimes referred to as face validity (Williamson et al, 1982). Content validity is the representativeness or sampling adequacy of the content - the substance, the matter, the topic - of a measuring instrument. Content validation is guided by the question: Is the substance or content of this measure representative of the content or the universe of content of the property being measured? This was a question asked by those staff members at Access College involved with the assessment battery. There was some doubt that the assessment battery content correlated with those skills/ attributes deemed necessary for course trainability.

Ordinarily, and unfortunately, it is impossible to draw random samples of items from a universe of content. Such universes exist only in theory. It is possible and desirable to assemble large collections of items, especially in the achievement arena, and to draw random samples from the collections for testing purposes. But the content validity of

course success could be made based on assessment results.

The word "prediction", in science, does not necessarily mean forecast. One "predicts" from an independent variable to a dependent variable. One "predicts" the existence or non-existence of a relationship, one even "predicts" something that happened in the past. The broad meaning of prediction is intended. Further, criterion-related validity is characterised by prediction against an outside criterion and by checking a measuring instrument, either now or in the future, against some outcome or measure. In a sense, all tests are predictive; they "predict" a certain kind of outcome - some present or future state of affairs (Kerlinger, 1986).

Anastasi (1982) makes a distinction between concurrent and predictive validation which are often collapsed into the umbrella term criterion-related validity. She states that the logical distinction between predictive and concurrent validation is based, not on time, but on the objectives of testing. Concurrent validation is relevant to tests employed for diagnosis of existing status, rather than prediction of future outcomes. The difference can be illustrated by asking "Is X psychotic (concurrent validation)?" and "Is X likely to become neurotic (predictive validation)?" (Anastasi, 1982).

An essential precaution in finding the criterion-related validity of a test is to make certain that the test scores do not themselves influence any individual's criterion status. This source of error is known as criterion contamination as the criterion ratings become "contaminated by the rater's knowledge of the test scores" (Anastasi, 1982).

A great difficulty in criterion-related validation is the selection of the criterion (Kerlinger, 1986). A test may be validated against as many criteria as there are specific uses for it. Any method for assessing behaviour in any situation could provide a criterion measure for some particular purpose (Anastasi, 1982).

According to Messick (in Walner & Braun, 1988) the key validity issues are the same as they have always been. They are the interpretability, relevance, and utility of scores, the

At the time of this study, it was the final, single, flat, quantitative total assessment score of the student that was focused on. Decisions about acceptance and allocation to one of the four courses were based on this global score. Retrospective norms for course selection were established by the College in 1992. The present assessment administrator was concerned about the assignment of students to one of the four courses. The drop-out rate was a problem as was the sometimes incorrect placement of students.

It was therefore proposed that developing a profile of the specific skills/attributes necessary for success in each course and determining which sub-tests on the assessment battery tap them, would help select and place students in the correct course. Such a profile would assist lecturers in terms of course presentation since individual needs would be known prior to course commencement. Thus, the profile would bridge the chasm between assessment and training. This would result in better selection and suitability of students for training. A more valid battery would increase the chances of excluding unsuitable students and increase the chances of including students who would succeed in training. Those students who were excluded could be prevented from experiencing failure and rather referred to more appropriate resources.

The existing assessment battery is a static non-dynamic tool. The validity of psychometric tests for assessing aptitudes is being increasingly challenged. The static approach of traditional tests assumes that a score on a test is a reliable indicator of future performance and does not take into account the effects of change through learning or experience (Feuerstein, 1979). The product-oriented construction of static tests demands the rigid standardisation of tests, in order to compare quantitatively the performance of individuals by assessing their mastery of earlier learning. This approach assumes that individuals being compared on the test have had an equal opportunity to learn (Haywood et al, 1975).

Feuerstein (1979) notes that the biases of content, modality and structure of standard tests, discriminate against culturally different and culturally deprived minorities among others.

2. RATIONALE AND AIMS

2.1 Rationale

Holmen and Docter (1972) state that it is of great concern that so many invalidated tests are applied in situations with such great potential to affect peoples' lives. So important is the issue of validity that test validity has often been challenged in court (O'Toole & Stankov, 1992).

The issue of establishing validity is important as it is a gross error to accept without question the validity of a measure. Researchers must be careful to question the validity of measures, since the whole interpretative framework can collapse on this one issue alone (Kerlinger, 1986).

The present assessment administrator at Access College felt that the existing assessment battery needed to be researched in terms of its predictive value. The concern was whether the present assessment battery (the predictor) adequately predicted students who would succeed (the criterion) during training. Thus the criterion-related validity of the assessment was questioned. According to Anastasi (1982) criterion-related validity is most appropriate for local validation studies, in which the effectiveness and suitability of a test for a specific purpose is to be assessed. No previous research had been conducted into the validity of the Access College assessment battery.

For training suitability, it is vital that those underlying skills/attributes deemed necessary for success in training be identified and measured during assessment. There needs to be a match between skills/attributes tested and skills/attributes required for success in the four different courses offered at Access College. The present test battery needed to be made valid so that the level of the test and skills/attributes tapped were appropriate for training requirements. Thus, the content validity of the assessment battery needed to be researched.

Appropriate and meaningful student selection will follow valid and fair trainability assessment tools.

begins to correct deficient cognitive processes and elaborates on strategies which could be optimally used in successful completion of the task. The giving of clues, questioning, focusing, suggesting and summarising are typical activities the examiner engages in to assess the intervention required. Finally, the post-teaching phase represents a variation of the original task, and the person's ability to adapt and generalise from the training received is analysed.

The University of Natal has developed a Test-Teach-Test (TTT) programme as an alternative selection procedure to selection based on the matric points score of students. In the TTT programme the focus of assessment is essentially on what Vygotsky (1978:87) referred to as "mental development prospectively", or "those mental processes that are currently in a state of formation, that are just beginning to mature and develop". Research is ongoing but results to date have been promising (Griesel, 1992).

No teaching or mediation component was present in the Access College battery where students are left to work independently.

A few studies in South Africa have attempted to adapt Feuerstein's approach to cognitive modifiability in terms of academic prediction and selection (Murray, 1988; Schochet, 1986 and Zolezzi, 1992). Such studies do reveal that it is possible to operationalise Feuerstein's learning potential theory for admission purposes.

Results of research into the cognitive modifiability of adolescents with schizophrenia has been found to be encouraging (Skuy, Apter, Dembo and Tyano, 1992) as has research with the deaf (Keane & Kretschmer, 1987).

Assessing students with disabilities for commercial training is a neglected area needing further research. Different methods of assessment exist, each with their advantages and disadvantages. Assessment batteries need to be closely evaluated to determine whether valid inferences can be made based on the results they yield. The inclusion of a dynamic assessment component into the Access College assessment battery could be considered.

- Mediation of Meaning
- Transcendence
- Competence
- Regulation and Control of Behaviour
- Sharing Behaviour
- Individuation,
- Goal Planning
- Challenge and Novelty
- Self-Change
- Sense of Belonging
- Optimistic Alternative.

The first three criteria are considered necessary and sufficient for a mediational interaction.

An important outcome of dynamic assessment is information regarding responsiveness of the person to the intervention. In contrast to traditional testing conditions, the examiners are not neutral in dynamic assessment. Rather, their interactions with the testee are considered an integral part of the assessment (Lidz, 1981 in Missiuna & Samuels, 1988). Learning potential is assessed by seeing how testees respond to training or mediation. The assessment question now focuses on identifying those who best respond to the education intervention provided. With the emphasis in assessment being on capturing an individual's capacity for change, when given the opportunity to do so, educational intervention and selection become mutually dependent (Griesel, 1992).

1.6.2 Test-Teach-Test

When assessing learning potential a test-teach-test paradigm is useful. Such a paradigm consists of three phases. During the initial phase the procedure is much like that of static tests, where the person is asked to respond to test items independently. This score forms the base-line of the test. The second is a teaching phase during which the examiner

Many of the parents of disabled children experience guilt, anger, grief and repression in coping with a disabled child and the normal channels of parent-child communication may be significantly altered. The nature of these coping mechanisms and communication problems may, in turn, significantly affect the parents' nurturing role, thereby disrupting the mediational learning process, that is, the organisation of environmental stimuli and events may not be adequately interpreted for the child.

As a child with disabilities (particularly cognitive or emotional) moves into the educational environment, his poor achievement may cause teachers to feel discouraged. This may cause a circular effect, with the low achievement leading to lowered expectations, thus continuing an environment in which the cognitive potential of the child is not tapped.

The contention that impoverishment in mediated learning experiences tends to mask cognitive potential suggests that traditional methods of assessing these abilities may be insensitive, primarily because they tap only environmentally learned abilities. Because of the nature of the deficiencies caused by the lack of mediated learning experiences, another type of assessment approach is necessary (Keane & Kretschmer, 1987) The dynamic approach to assessment is a procedure in which purposeful teaching occurs within the testing situation. Theorists and clinicians have suggested that the best way to predict learning efficiency is to assess it in an actual learning and teaching situation (Haywood, Filler, Shifman & Chatalenat, 1975). Mediated learning is a special kind of interaction, involving a human mediator who interposes himself/herself between the learner and the world of stimuli to promote effective learning by interpreting, guiding and giving meaning to the stimuli. In this kind of interaction, learning is intentional rather than incidental (Feuerstein, 1980).

Feuerstein has identified twelve criteria or types of interaction which he believes are fundamental in mediation. These are:

- Intentionality and Reciprocity

Jensen, 1981).

Feuerstein (1979) used the term 'culturally deprived' to refer to individuals who lack appropriate mediated learning experience. The term refers to individuals who have not had their own culture transmitted to them. Feuerstein (1979) had delineated a number of cognitive deficiencies that are manifest in culturally deprived individuals. He proposed that any assessment of intelligence must evaluate three types of performances:

- The individual's processes for absorbing the basic information needed ("input" processes)
- Those for analysing or operating upon the information ("elaborational" processes) and
- Those for communicating the result ("output" processes).

Feuerstein (1979) developed a list of specific cognitive functions and dysfunctions which can occur in the three levels of cognitive functioning. He stated that remediation can (and may need to) occur at all three performance levels of the cognitive process (Narrol and Bachor, 1975). In studies of deaf populations similar cognitive/behavioural deficiencies have been noted in studies of deaf populations (Levine, 1981; Sarlin & Altshuler, 1978; Schlesinger & Meadow, 1972 in Keane & Kretschmer, 1987) accompanied by academic retardation (Levine 1981; Tomlinson-Keasey & Kelly, 1978 in Keane & Kretschmer, 1987).

1.6.1 Dynamic Assessment and the Disabled

The similarities in terms of cognitive deficiencies between physically, emotionally or cognitively disabled and culturally deprived individuals can be comprehended from:

(a) Feuerstein's (1979) notion of cultural deprivation as a breakdown in the intergenerational transmission of culture, and

(b) the environmental milieu in which most disabled children are raised.

educationally disadvantaged.

A further area of disadvantage in South Africa is the sparsity of educational and training resources for those with disabilities. According to da Avila-Coelho (1994) almost one-fifth of the South African population are disabled and most of the disabled population are Black, and therefore doubly disadvantaged. Educational facilities for the disabled are few, and further there is a lack of equality in terms of distribution of resources both in relation to the various types of disabilities per se and along racial lines too.

Thus inadequate or deflated performance on traditional, static tests may simply reflect the lack of appropriate and/or adequate learning experiences. This is an issue possibly needing to be addressed in the Access College assessment battery.

An alternative approach to assessment which reflects an emphasis on modifiability (ie. the capacity to benefit from formal and informal learning) or learning potential rather than present performance, is known as dynamic assessment. Dynamic assessment diverges from the psychometric framework in that it measures intra-individual change, not inter-individual difference. Dynamic approaches were developed *inter alia* by Vygotsky (1962), Brown (1979) and Feuerstein (1979).

Feuerstein's Theory of Cognitive Modifiability is a promising approach. This approach to testing and prediction emphasizes potential rather than manifest performance. The notion of educability, rather than a static notion of functioning, is emphasized (Feuerstein, 1979).

Two types of learning are identified: the first is learning through direct exposure to the environment. The second is learning that is facilitated and directed by a mediator who interprets the environment for the learner. Such mediated learning experiences can improve the cognitive abilities of a learner during any stage of development. Current levels of functioning are rather conceptualised as indicators of the extent to which a learner received appropriate mediated learning experiences (Feuerstein, Miller, Re

of vocational trainability. Research by Griffiths (1974) suggests that the most viable tool in vocational assessment is systematic observation in a simulated work setting and that work adjustment and interpersonal skills are the characteristics most closely related to vocational success or failure of individuals labelled emotionally disabled or psychiatrically disturbed.

The traditional approach to assessment that emphasizes interviewing and testing is unable to gather information about work adjustment and interpersonal skills. Situational assessment allows for evaluation of these abilities.

Much research has been conducted into the area of adapting and validating standardised tests for the disabled with varying results (Wagner, 1994; Phillips, 1993; Casey 1987, Phelps, 1980 in Hurn and Kerns, 1988).

1.6 Dynamic Assessment

Another area of concern for those involved with assessment at the College was that there was no dynamic assessment component in the Access College assessment battery. The present battery is static and learning potential is not tapped.

There is widespread and increasing dissatisfaction with traditional standardised tests in relation to assessment (Adelman & Taylor, 1979; Yesseldyke, 1983). Standardised tests rest on the assumption that all students have had equal opportunities to acquire the information, attributes and skills probed for in those tests (Campione, 1989).

In South Africa people who are other than White have always occupied a severely disadvantaged position socio-politically. The per capita amount spent on Black children has been significantly lower than that spent on White education (Marcum, 1982 in Skuy & Shmukler, 1987). The Bantu Education Acts of the 1950's have been described as perpetuating inferior education for Blacks (Burman & Reynolds, 1986). There is a large body of evidence that in the South African context Black students have been

persons, while performance tests are least likely to be applicable. In addition to the usual oral presentation by the tester, other suitable testing techniques have been employed, such as tape recordings. Some tests are also available in Braille. The latter technique has some limitations. It is bulky, creates a slower reading rate and also there are a large number of blind people who cannot read Braille.

- Although usually able to receive auditory and visual stimulation, the physically disabled may have such severe motor disorders as to make either oral or written responses impracticable. The manipulation of performance materials would likewise meet with difficulties. Working against a time limit or in foreign surroundings may increase anxiety which often in turn increases motor disturbance. Their greater susceptibility to fatigue makes short testing sessions necessary (Anastasi, 1982).

- The difficulties that learning-disabled individuals face with traditional testing are similar to difficulties faced by other disabled students. Specific problems are created through administration procedures requiring reading and multiple-step instructional tasks. Further, past testing has usually resulted in frustration and feelings of helplessness which may influence present test performance (Hursh & Kerns, 1988).

Traditional methods of assessment, although adequate for establishing diagnostic labels consistently fail in predicting vocational outcome. Similarly, many vocational evaluation tests have been found not to be useful in vocational trainability decision making for individuals with psychiatri. disabilities. Assessment procedures used to reflect measures of vocational potential appear to bear little relationship to the student's actual vocational potential (Hursh & Kerns, 1988).

- Anthony (in Hursh & Kerns, 1988) in reviewing pencil and paper tests used with psychiatrically disabled adults found that psychometric tests were poor predictors

paper tests developed by the United States Employment Service for job counselling and placement. Their research found that people with disabilities scored lower on the test than the major group. They feel that the most obvious problem in assessing the disabled is that standardised tests often cannot be administered satisfactorily to people with physical disabilities. Standardisation implies uniformity of procedure in administering and scoring tests (Anastasi, 1982). Various modifications have been attempted, for example, to provide Braille or oral versions for blind testees or to modify the responses required from those with motor difficulties. Indeed, the history of non-verbal performance tests began with tests for hearing impaired people (Anastasi, 1988). Such modifications of format and/or content, however, have unknown effects on the construct validity of the instrument and the meaning of test scores. This has particular relevance for the Access College battery where many modifications to the assessment battery have been implemented in an attempt to accommodate students with diverse disabilities.

Johnson (in Vogel & Adelman, 1993) state that all tests assess multiple functions. Therefore, even the most valid and reliable measures may not always test what they purport to measure among the disabled. Further, many tests are misused because testers fail to take into account the differences in validity and reliability that tests have for different populations (Holmen & Docter, 1972).

Disabled students face many difficulties with traditional testing (including vocational assessment). Testers need to be sensitive to the testee and his specific difficulties and be creative in attempts to accommodate them (Lewis in Anastasi, 1988). Students with different disabilities face varying difficulties. Some of these are as follows:

- The general retardation in linguistic development of the deaf results in these testees being disadvantaged on verbal tests, even when the verbal content is presented visually (Anastasi, 1982).

- Testing the blind presents a very different set of problems from those encountered with the deaf. Oral tests can be most readily adapted for blind

evaluated on technical ability to perform on the job but also on his ability to interact with co-workers, supervisors and the public. Systematic observation of skills and behaviour analysis are assessment tools used to evaluate adjustment behaviour, interpersonal skills and readiness for more direct placement (Hursh & Kerns, 1988).

Research with the disabled conducted by Bolton & Brookings (1993) found that situational training ratings were more accurate in assessing potential vocational success than standardised psychometric test scores. This finding is significant as the Access College assessment battery excluded situational assessment entirely. The inclusion of situational assessment in the Access battery could be considered. Issues such as cost and time might limit the possibility of such implementation.

1.5 Assessment Challenges and the Disabled

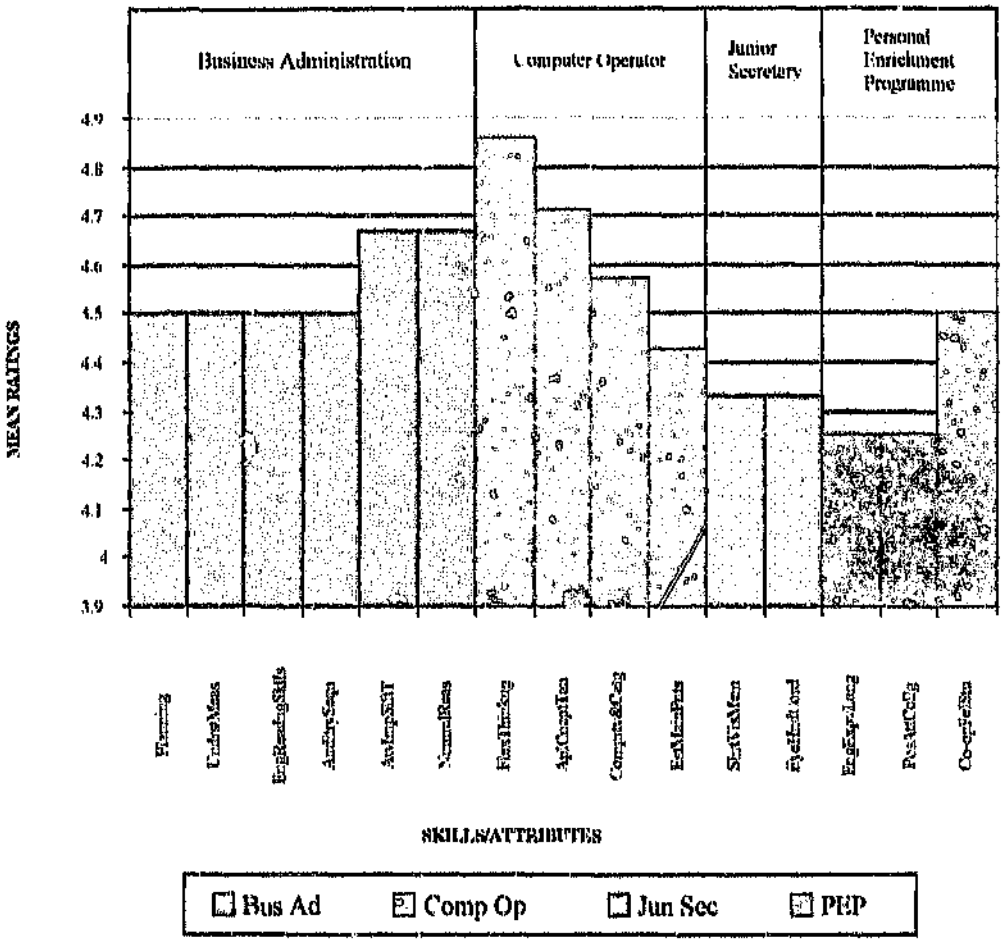
According to Hursh & Kerns (1988) most current assessment models are not useful in determining vocational characteristics of disabled students. Psycho-educational diagnostic tests have an academic orientation and are diagnostic in nature. Neuropsychological tests are appropriate diagnostic tools and accurately identify central nervous system dysfunction. They have limited ability, however, to provide information about disabled vocational outcomes.

According to Hartigan and Wigdor (1989) the populations most at risk of misassessment include people with disabilities. Like certain racial and ethnic sub-groups, people with different kinds of disabilities have lower scores on average than the majority group. Yet for other population groups, although there are some inconsistencies, the test scores have a fundamental comparability of meaning. No such claim can be made for the scores of people with disabilities. Thus, there are great difficulties using standardised tests to assess people with disabilities.

Research conducted by Hartigan & Wigdor (1989) was conducted using the General Aptitude Test Battery (GATB). The GATB is a battery of performance and pencil and

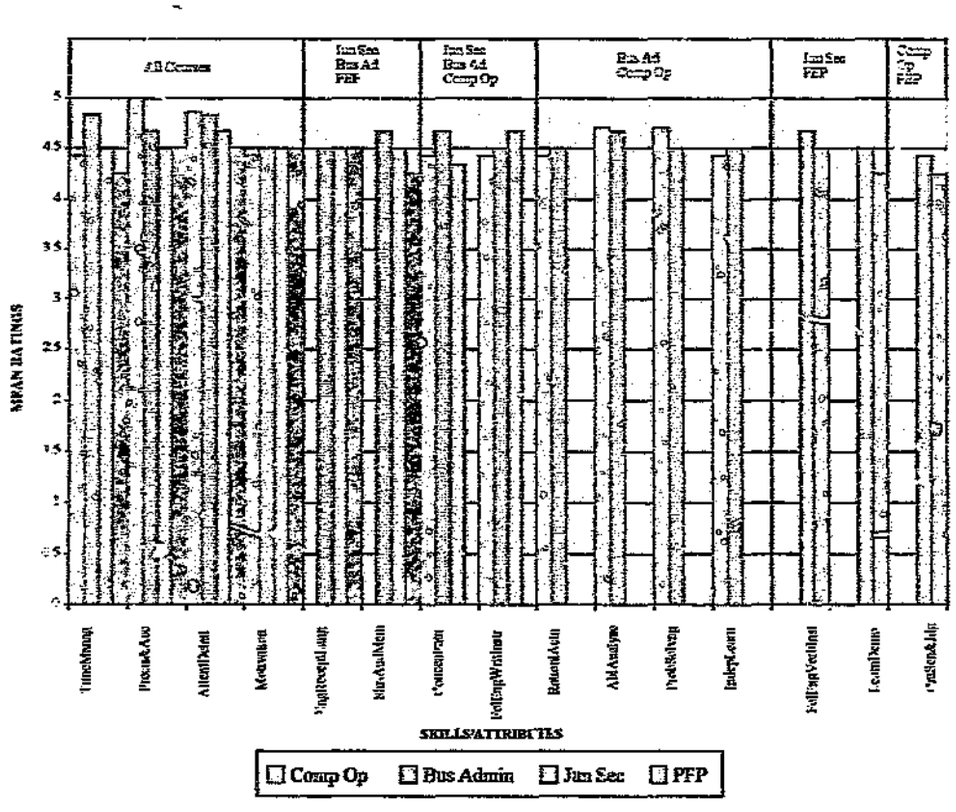
From Figure 1 it can be seen that there are fifteen skills/attributes which are required for success in more than one course. Th' ' four pre-requisite skills/attributes (common skills) which are necessary for success in all the courses at Access College.

Figure 2: Skills and attributes necessary for success in one course only



The results of Figure 2 show that there are specific skills/attributes necessary for success in individual courses. There are six unique skills/attributes required for success in the business administration course, four for computer operations, two for junior secretarial and three for the personal enrichment programme.

Figure 1: **Skills/Attributes deemed necessary by course lecturers for success in more than one training course**



Independent learning
Rational action
Time management
Ability to establish main points
Commonsense and judgement
Motivation
Concentration
Ability to follow English written instructions

- Personal Enrichment Programme

  Co-operation with fellow students
  English receptive language
  Precision and accuracy
  Attention to detail
  Motivation
  Ability to follow English verbal instructions
  Positive attitude to College
  Time management
  Commonsense and judgement
  Ability to learn from demonstration
  Short-term auditory memory
  English expressive language.

It is evident from the results that there were eighteen skills/attributes necessary for success in the business administration course, twelve for the junior secretarial course, fifteen for the computer operator course and twelve for the personal enrichment programme.

- Business Administration Course

  Attention to detail
  Time management
  Awareness of importance of self-testing and reviewing
  Precision and accuracy
  Ability to analyse
  Short-term auditory memory
  Concentration
  Numerical reasoning
  English receptive language
  English reading skills
  Motivation
  Independent learning
  Rational action
  Problem solving
  Understanding of measurement
  Auditory sequencing
  Ability to follow English written instructions
  Planning

- Junior Secretarial Course

  Ability to follow English verbal instructions
  Ability to follow English written instructions
  Attention to detail
  Short-term auditory memory
  Motivation
  Ability to learn from demonstration
  Precision and accuracy
  Time management
  English receptive language
  Eye-hand co-ordination
  Short-term visual memory
  Concentration

- Computer Operator Course

  Precision and accuracy
  Attention to detail
  Flexibility in thinking
  Problem solving
  Ability to apply concepts taught
  Ability to analyse
  Comparative and categorisation skills

The list of possible necessary skills/attributes in the questionnaire, was collated from Feuerstein's List of Cognitive Functions and Dysfunctions (1979), the Wechsler Intelligence Scale - Revised (1974) and the Learning and Study Strategies Inventory (1987).

3.1.2.1.2 Procedure

Self-administered questionnaires were administered to the lecturers at Access College in order for them to identify the skills/attributes they felt were necessary for success in the four training courses (ie. "what is necessary for success?"). The lecturers rated the importance of skills/attributes by means of a Likert-type Scale and were given an opportunity to add skills/attributes to the non-exhaustive list. The lecturers thus responded with degrees of agreement or disagreement using the five point scale. The scores of the items for each lecturer for each course were summed and averaged to yield a mean attitude score for the importance of the skills/attributes. The cut-off for inclusion of a skill/attribute as necessary for course success was at the point where the mean dramatically dropped (see Appendix 5). The Pearson Product Moment Correlation Coefficient was computed to determine inter-rater correlations and established which raters should be included and excluded in the analysis.

3.1.2.1.3 Results

Self-Administered Questionnaire (for lecturers)

Inter-rater consistency

In order to ascertain the inter-rater agreement the Pearson Product Moment Correlation Coefficient was computed. Raters' ratings were correlated with each other and those who had low correlations with other raters were excluded (see Appendix 6).

The results of lecturers' Likert-type Scale ratings of the skills/attributes they deemed necessary for success in the four College courses are presented below:

scores and the number of credits obtained on course completion.

The Pearson Product Moment Correlation Coefficient was used to determine this relationship (between the score and criterion measure). The total assessment scores of students (the predictor) was highly positively correlated with course success (the criterion), ie. number of credits obtained on course completion. This means that a high score on the one variable was associated with a high score on the other variable (Runyon & Haber, 1980). The correlation coefficient was 0.39 ($p<0.01$). These results reflect high criterion-related validity of the Access College assessment battery.

3.1.2 Content-Related Validity

This was a two-fold process. Firstly, course lecturers completed a self-administered questionnaire to determine which skills/attributes they believed were necessary for success in the four Access College courses. Secondly, a workshop was held with a multi-disciplinary team of professionals to determine which skills/attributes were being tapped by the various sub-tests in the existing battery.

3.1.2.1 Course Lecturer Component

3.1.2.1.1 Measures

Self-administered questionnaire (for lecturers).

A self-administered questionnaire was developed by the researcher and administered to the twelve College lecturers at a suitable time negotiated with the College.

The questionnaire consisted of a biographical section, structured and unstructured questions and Likert-type Scales (see Appendix 4). The aim of the questionnaire was to determine which skills/attributes lecturers felt were necessary for success in the course/s in which they lecture.

quadraplegics.

The assessment results are collated for each student (Appendix 3) and each student obtains a single, total assessment score. Admission to the College and placement in one of the four courses offered is determined by this total score. The course selection criteria are as follows:

Below 19 points	=	rejected for training
19 points to 22 points	=	Personal Enrichment Programme
23 points to 25 points	=	Junior Secretarial course
26 points to 28 points	=	Computer Operator course
29 points and above	=	Business Administration course.

Some flexibility is permitted at the discretion of the College.

No previous research has been conducted on the validity and reliability of this battery which was developed in 1988 by the occupational therapist employed at the College. The battery has undergone some subjective revisions since 1988. The battery's scoring system was developed by the present occupational therapist and there is only one scoring system for people of all disabilities.

3.1.1.3 Procedure

Correlations of assessment results and number of course credits were calculated via the Pearson Product Moment Correlation Coefficient. This was to determine whether there was a relationship between the total assessment score and the number of credits obtained on course completion.

3.1.1.4 Results

The results reflect the correlation, for the whole student sample, between total assessment

The existing Access College assessment battery will be described in greater detail below.

1.1.2.1 Access College Assessment Battery

This group administered assessment battery is administered to all new students prior to admission to do training at the College. The aim of the assessment battery is to determine suitability for training. The battery is administered by an occupational therapist employed at the College.

The battery is made up of a number of components. The first part is an English readiness screening. Each student completes an English readiness test called the 'English Literacy Skills Assessment' (ELSA) Intermediate. This is a standardised literacy test developed by Hough and Horne. The literacy score is computed by the distributing company and quantifies a respondent's English literacy skills. The ELSA Intermediate has been well researched in South Africa and its predictive validity is 80% and its reliability 0.86 (Hough & Horne).

The second part of the assessment battery consists predominantly of pencil and paper tasks . Some of these pencil and paper sub-tests have been modified from existing tests and some created by the original test developer. Each student completes the twenty-five page assessment battery consisting of eleven sub-tests which each tap certain skills and attributes. The twelfth sub-test is sometimes in the form of an interview and sometimes a pencil and paper task depending on time pressures. Students are given six hours to complete the battery at their own pace in a lecture room at the College. There is no mediation from the occupational therapist who administers the battery and students must work independently.

Test administration is not standardised as there is not uniformity of procedure in administration. The administration of the battery is modified for blind, deaf and quadraplegic students. For blind students a "buddy" system is used and sub-tests tapping visual acuity are excluded. Interpreters are used for deaf students and scribes for

Table 1: Composition of the sample in terms of age, gender, educational level, disability, race and course

Sample Size	52
Age	Mean ..... 21.92 years Standard Deviation ..... 4.73 years Range ..... 16 to 36 years
Gender	Males ..... 34 Females 18
Educational Level	Mean ..... Std 8.73 Standard Deviation ..... 1.69 Range ..... Std 4 to tertiary education
Disability	Physical ..... 30 Emotional/Psychiatric ..... 5 Cognitive 17
Race	White ..... 34 Asian ..... 1 Black 17
Course	Personal Enrichment ..... 6 Junior Secretarial ..... 12 Computer Operations ..... 25 Business Administration 9

3.1.1.2 Measures

The measures used to determine the criterion-related validity of the assessment battery were the Access College assessment battery (see Appendix 2) and students' final course results, ie. the number of credits obtained on course completion. The assessment battery constituted the predictor and students' final course results the criterion measure.

Students' final academic reports provided the information about the number of credits obtained on course completion.

Biographical information was obtained from students' College application forms.

3. DESCRIPTION OF THE STUDY

In this section each research aim is presented in terms of the method employed and research results.

For a key to the abbreviations used in some of the tables, figures and appendices the reader is referred to Appendix 1.

3.1 Establishing the Validity o ' the Present Access College Assessment Battery

3.1.1 Criterion-Related Validity of the Assessment Battery for the Whole Student Sample

3.1.1.1 Subjects

The sample was made up of fifty-two students (34 male and 18 female) attending Access College, Randburg. Subjects were selected from the January 1994 to April 1994 intake. The sample could only be collected from January 1994 as it was from this time that the battery, in its present form, had been introduced at the College. Students r .nged in age from sixteen years to thirty-six years and had differing disabilities and previous educational levels.

2.2.3 To explore perceptions and the levels of satisfaction with the existing Access College assessment battery and course selection procedure as perceived by a multi-disciplinary team, Access College lecturers and potential College students.

2.2.4 To determine which assessment battery sub-tests were the strongest measures of the skills/ attributes necessary for success in the four training courses (in order to shorten the lengthy battery).

2.2.5 To recommend revisions to the existing assessment battery based on:

- the validity findings
- dynamic investigation
- levels of satisfaction with the assessment battery
- levels of satisfaction with the course selection procedures
- findings on which sub-tests were the strongest measures of the necessary skills/attributes.

As previously indicated, the disabled are a diverse minority group having been exposed to different resources according to the nature of their disability, as well as differing assistance depending on their race group. It was therefore felt to be critical to assess the potential of students without focusing on their mastery of previous learning. It was a concern that the present battery was biased to the detriment of those with lower educational achievements and discriminated against candidates with physical disabilities. It was also felt that Feuerstein's dynamic approach which taps learning potential was an additional dimension which could be included in the revised assessment battery. It was also felt that the introduction of mediation and the concept of test-teach-test would be appropriate.

Further difficulties with the present battery were identified by the test administrator and researcher. It was found to be long and some sub-tests repetitive. The clarity of language and instructions in some questions was debatable. Further concerns included:- the poor link between assessment and training; the battery being largely unrelated to the work environment; and situational assessment being excluded entirely. These difficulties were not conducive to optimal student performance and thus the battery needed to be re-evaluated in its entirety to render it more valid, dynamic, professional, and "user friendly".

2.2 Aims

The aims of this study were:-

2.2.1 To establish the criterion-related validity (comparing test scores with a criterion believed to measure the attribute under study) and content-related validity (the sampling adequacy of a measuring instrument) of the existing Access College assessment battery.

2.2.2 To investigate the possible inclusion of a dynamic assessment component in the existing assessment battery.

3.3.3.4 Relationship between Number of Credits Obtained and Course Selected

An Anova was conducted with the variables course selected (independent variable) and number of credits (dependent variable) obtained on completion of training. Results of the Anova are presented below.

Table 10: Results of Anova comparing number of credits obtained and course

COURSE		ERROR		F RATIO
df	ms	df	ms	
3	215.52	48	35.10	6.14*

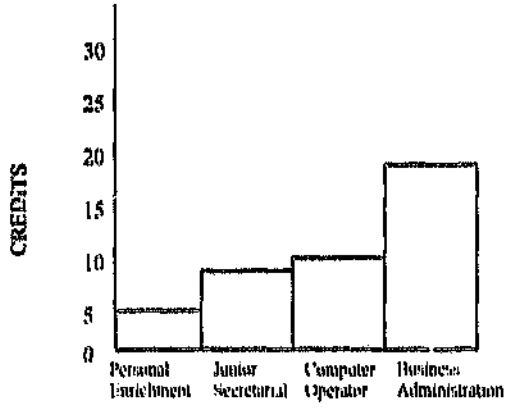
* ($P < 0.05$)

From the results of Table 10 it can be seen that there was a significant difference in the number of credits obtained across the different College courses. The means and standard deviations of each course's number of credits on completion of training are presented in Table 11.

Table 11: Means and standard deviations of credits obtained on completion of training in the four courses

COURSE	MEAN	STANDARD DEVIATION
Personal Enrichment Programme	4.16	3.76
Junior Secretarial Course	9.41	4.07
Computer Operator Course	10.52	6.97
Business Administration Course	17.11	5.75

Figure 5: Mean number of credits achieved for four training courses (n=52)



3.3.3.3 Multi-Disciplinary Team of Professionals' Perceptions of Existing Assessment Battery

The subjective perceptions of the multi-disciplinary professionals (n=5) about the battery were determined through discussion at the workshop. There was consensus on a number of issues. These included the following concerns:-

- The battery was too lengthy and some sub-tests repetitive
- The language in many sub-test questions was verbose and unclear
- The absence of any dynamic assessment could discriminate against some students' chances of College acceptance
- The emphasis was on pencil and paper tasks and there was an absence of any practical testing component
- The inclusion of a sub-test called "self-expressed goals". This sub-test focuses on student goals and support systems. It was noted that some students were required to independently complete a one-page written questionnaire as part of the battery and that others were interviewed using the questionnaire as an interview schedule (Appendix 2). The reason given for the variation in administration was the time factor. If time permitted interviews would be conducted by the tester or another College staff member
- The way in which the test battery norms were established
- The possible undermining of validity by the inclusion of selected samples of test items from two standardised published tests in questions 10.1 and 10.2 of the assessment battery. Question 10.1 had been derived from a locus of control test and question 10.2 from a purpose-in-life test.

The results of the research relating to satisfaction with the Access College assessment battery and course selection suggest the need for revisions to the battery and selection procedure. The issue of student assessment information being made available to lecturers prior to course commencement needs consideration.

more dynamic assessment approach such as test-teach-test. More than half (58%) of the lecturers felt that assessment results were not representative of students' abilities since testing was "contaminated" by the emphasis on the reading and writing modalities.

Seventy-two percent of the lecturers were dissatisfied that assessment results were not readily available to them prior to course commencement. It was felt important to receive information promptly about students so that course presentations could be modified accordingly. Two lecturers (17%), however, felt that having information about students would result in preconceptions which may jeopardise students.

3.3.3.2 Potential Access College Students' Perceptions of Existing Assessment Battery

A self-administered questionnaire was administered to a pilot group of seven students on completion of the assessment battery to determine their perceptions of it.

The results of this questionnaire showed a high degree of satisfaction with the existing assessment battery. Six of the seven respondents felt that the assessment battery provided a fair reflection of their trainability and none of the respondents felt that the battery needed to be changed in any way.

The results of the first factual question about time taken to complete the battery was perturbing. Students' perceptions of time taken to complete the battery were significantly incongruent with actual time taken as determined by the assessor. The mean student perception of time taken was 2,26 hours whereas the actual mean time taken was 5,64 hours. Results of this questionnaire thus need to be viewed with caution.

Results appear to have been contaminated by two factors. The questionnaire had to be completed immediately after completion of the assessment battery as students would not all be returning to the College the following day. Students at this stage were possibly tired after six hours of testing which would affect responses. Further, students possibly felt that if they did not respond positively, this may influence their chances of acceptance by the College.

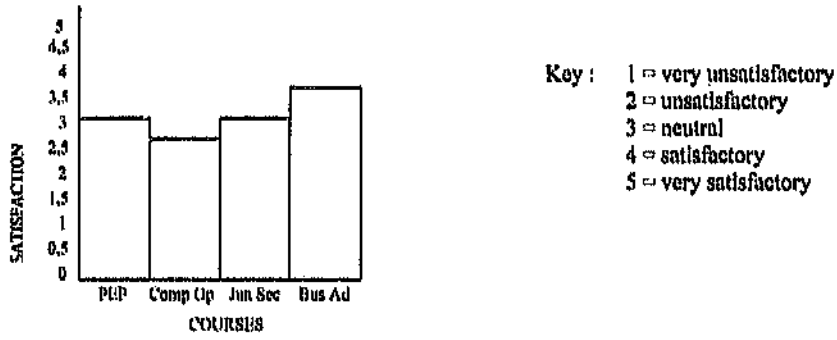
3.3.3 Results of Research Related to Satisfaction with Existing Assessment Battery and Selection Procedure

3.3.3.1 Lecturers' perceptions of the existing assessment battery and course selection procedure.

Course lecturers were asked to complete a Likert-type Scale to determine the extent to which they felt satisfied with the existing criteria for student course selection.

The mean ratings of levels of satisfaction with these criteria expressed by the lecturers for the four courses, are presented in Figure 4.

Figure 4: Lecturers' mean ratings of satisfaction with present course selection criteria (n=12)



From Figure 4 it is evident that none of the lecturers found the existing course selection criteria satisfactory. Lecturers were least satisfied with the selection criteria for the computer operator course and most satisfied with the selection criteria for the business administration course.

The responses of lecturers to open-ended questions about the existing assessment battery are discussed below.

Seventy-five percent of the lecturers, felt that changes to the present assessment battery were necessary. Suggestions for improving the battery included the introduction of a

3.3.1.2 Self-Administered Questionnaire (for lecturers)

Another dimension of the self-administered questionnaires completed by the College lecturers ascertained their perceptions of the existing assessment battery and course selection procedure. The questionnaire items consisted of Likert-type Scale items. Respondents were also able to provide subjective comments in the questionnaire (see Appendix 4).

3.3.1.3 Self-Administered Questionnaire (for potential College students)

Self-administered questionnaires were administered to potential Access College students on completion of the assessment battery to ascertain their perceptions of the battery (see Appendix 8).

3.3.1.4 Students Final Academic Reports

These reports displayed the number of credits students obtained on completion of training in the four different training courses. This information demonstrated whether there was a significant difference in the mean number of credits achieved for each course.

3.3.2 Procedure

The multi-disciplinary team's perceptions and attitudes to the assessment battery were recorded. Course lecturers and potential College students perceptions of the assessment battery were determined by their responses in the questionnaires administered to them.

An Anova was conducted to compare the number of credits obtained on completion of training with the specific course chosen. This was to determine whether a significant relationship existed between number of credits obtained and course selected.

Table 9: Means and standard deviations of total assessment scores for students with different primary disabilities

TYPE OF DISABILITY	MEAN	STANDARD DEVIATION
Physical	25.76	5.05
Cognitive	26.88	5.84
Psychiatric	31.20	3.89

The Welch Test for equality of means where variances are not assumed to be equal yielded a score of 3.60 (df = 2.12) which was not significant at the 0.05 level but was significant at the 0.75 level. From Table 9 it is clear that the mean total assessment scores of students with psychiatric disabilities was significantly higher than the other two groups.

Overall, these results indicate that educational level achieved and type of disability did affect total assessment scores but race did not. This result suggests the need for dynamic assessment in the existing battery and for testing modifications to be made for those with physical or cognitive disabilities.

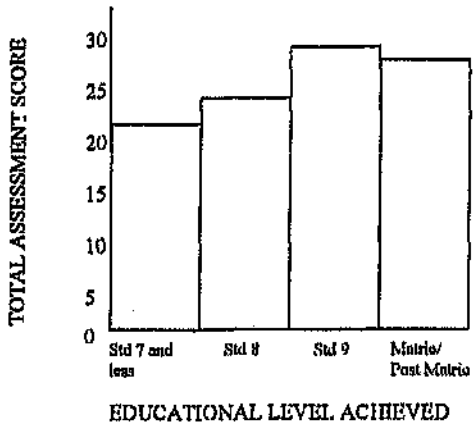
3.3 Researching Perceptions of Satisfaction with the Existing College Assessment Battery and Course Selection Procedure

3.3.1 Measures

3.3.1.1 Workshop

A multi-disciplinary team of professionals evaluated the existing Access College assessment battery. They focused on the issues of language clarity, length of the battery and the modality of questions (content and layout).

Figure 3: **Mean total assessment scores for educational levels achieved (n = 40)**



From Table 7 and Figure 3 it is clear that students' total assessment scores were highest in the standard nine group followed by the matric/post matric group and then the standard eight group. The lowest total assessment scores were for students with a standard seven or less. The differences in total assessment scores for the groups was significant at the 5% level. This result suggests that those with lower educational levels could be unfairly disadvantaged. Thus the need for the inclusion of a dynamic assessment component to the existing assessment battery is proposed so that learning potential can be tapped.

Table 8: **Results of Anova comparing total assessment scores and type of disability**

TYPE OF DISABILITY		ERROR		F RATIO
df	ms	df	ms	
2	63.91	49	27.50	2.32*

* (P = 0.10)

From the results of Table 8 it can be seen that there was no significant difference in total assessment scores using Anova across disability. The means and standard deviations of the total assessment scores are presented in Table 9.

Table 5: Means and standard deviations of White and Black students' total assessment scores

RACIAL GROUP	MEAN	STANDARD DEVIATION
White	27.20	5.38
Black	25.11	5.08

Table 6: Results of Anova comparing total assessment scores and educational level achieved

EDUCATIONAL LEVEL		ERROR		F RATIO
df	ms	df	ms	
3	90.77	45	24.81	3.66*

* (P < 0.05)

From the results of Table 6 it is evident that there was a significant difference in total assessment scores across educational levels. The means and standard deviations of each of the educational levels are presented in Table 7. Figure 3 presents the mean scores.

Table 7: Means and standard deviations of total assessment scores for educational levels achieved

EDUCATIONAL LEVEL ACHIEVED	MEAN	STANDARD DEVIATION
Standard 7 or less	22.20	5.92
Standard 8	27.1[illegible]	2.44
Standard 9	28.75	3.28
Matric/post matric	28.00	5.92

variables of race, educational level and type of disability (the primary disability of the student was used) against total assessment score (dependent variable) to determine whether they were significantly related to the total assessment scores. The maximum total assessment score possible was thirty-six points.

The Welch Test was also performed for type of disability. This test measures the significance of the difference between means where population variances are unequal. A t-test for the significance of the difference between means assumes equality of the population variances and thus the Welch Test was performed. This test makes an adjustment in the number of degrees of freedom to accommodate unequal variances (Ferguson, 1966).

3.2.2 Results

The results of the Anovas performed for the variables race, educational level and type of disability against total assessment scores are presented in the tables below.

Table 4: Results of Anova comparing total assessment scores for different race groups

RACE		ERROR		F RATIO
df	ms	df	ms	
1	49.42	49	27.98	1.77*

* (P = 0.19)

From the results of Table 4 it can be seen that there was no significant difference in total assessment scores across race. The means and standard deviations of each group's total assessment scores are presented in Table 5.

underlying skills/attributes named. It became evident that each sub-test of the assessment battery tapped several skills/attributes deemed necessary for course success. There were twelve skills/attributes, however, deemed necessary for success that were not being tapped in the existing battery. These twelve skills/attributes are listed in Table 6 below.

Table 3: Skills/Attributes deemed necessary for success in one or more course but not tapped in the present assessment battery

1.	Time management
2.	Ability to apply concepts taught
3.	Ability to establish main points
4.	Understanding of measurement
5.	Common sense and judgement
6.	Auditory sequencing
7.	Positive attitude to College
8.	Awareness of importance of self-checking
9.	Co-operation with fellow students
10.	Ability to follow English verbal instructions
11.	Ability to learn from demonstration
12.	Independent learning

3.2 Researching the Possible Inclusion of a Dynamic Assessment Component in the Existing Battery

3.2.1 Procedure

The significance of the variables of race, educational level achieved and type of disability, on the total assessment scores of the student sample intake, were researched. It was important to determine these relationships when considering whether the inclusion of a dynamic assessment component would be of value to the existing assessment

Table 2: Skills/Attributes deemed necessary for success and number(s) of sub-test(s) on assessment battery which tap/s skill/attribute

SKILL/ATTRIBUTE	Number(s) of sub-test(s) which tap skill/attribute
Planning	6.1, 6.2, 6.3, 6.4, 7.1, 7.2, 7.3, 9.2
Rational Action	1.1, 2.1, 2.2, 2.3, 2.4. 1, 3.2
English Receptive Language	5.1, 5.2, 5.3, 5.4, 5.5, 6.1, 7.1, 7.2 Elsa score Communicative effectiveness score (subjective score by tester)
English Expressive Language	1.1 Elsa score Communicative effectiveness score (subjective score by tester) Spoken English score (subjective score by tester)
Flexibility in Thinking	7.3
Precision and Accuracy	2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5, 6.1, 6.2, 6.3, 6.4, 7.3, 8.1, 8.2, 8.3
Comparison and Categorisation	4.2. 4.5, 7.1, 7.2, 7.3, 9.2
Analysis	3.2
Problem Solving	2.1. 2.2, 2.3, 2.4, 3.1, 3.2, 4.3, 4.4, 7.3
English Reading Skills	Sub-tests 1.1 to 10.2 Elsa score
Short Term Auditory Memory	9.4. 9.5, 9.6, 9.7
Short Term Visual Memory	4.3, 4.4, 7.3, 9.1. 9.2, 9.3, 7.1, 7.2
Attention to Detail	2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5, 6.1, 6.2, 6.3, 6.4, 8.1, 8.2, 8.3, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7
Motivation	Whole battery excluding Elsa, spoken English and hand functioning screening scores
Concentration	Whole battery excluding Elsa, spoken English and communication effectiveness scores
Eye and Hand Co-ordination	Hand Functioning Screening score
Ability to follow English Written Instructions	Whole battery excludin ; spoken English and Communication Effectiveness scores
Numerical Reasoning	2.1, 2.2, 3.1, 4.3, 6.2, 6.3, 8.1, 8.2, 8.3

The workshop component of this study was a subjective analysis of the assessment battery sub-tests. Only where there was consensus between workshop participants, were

3.1.2.2 Workshop Component

3.1.2.2.1 Measures

Workshop

A workshop, consisting of a multi-disciplinary team, was held with professionals from five fields (see Appendix 7). The following fields were represented - educational psychology, speech therapy, occupational therapy, remedial therapy and the teaching profession.

The aim of the workshop was to determine the underlying skills/attributes being tapped in the present assessment battery sub-tests.

Each workshop participant was sent a copy of the assessment battery two weeks prior to the workshop so they would have time to familiarise themselves with it.

3.1.2.2.2 Procedure

Once the skills/attributes necessary for course success were established by the course lecturers, it was essential to determine whether such skills/attributes were in fact being tapped in the existing assessment battery (establishing content validity). The workshop participants' analysis of the assessment battery established which skills/attributes were being tapped in the battery. By comparing "what is necessary" with "what is tested", the discrepancy in skills/attributes not being tapped was highlighted.

The results of the multi-disciplinary team workshop to determine which underlying skills/attributes were being tapped in the existing Access College assessment battery, are presented in Table 2 below together with the number(s) of the sub-test(s) which tap them.

The battery's emphasis on pencil and paper tasks to the virtual exclusion of any practical testing component is another issue needing to be addressed. Vocational evaluation should not be a static process but rather a dynamic one that exposes students to varied tasks including simulated work and on-the-job evaluation (Hursh & Kerns, 1988). Time and monetary constraints are probably what prevent the College introducing situational samples. Further, it is ultimately employability that is important and not necessarily the number of credits students obtain on completion of training. The inclusion of more work samples and the introduction of situational samples would possibly provide a clearer picture of ultimate employability rather than an artificial testing context such as that at Access College. Perhaps students who would not cope in the open labour market would be more readily identified and could be referred elsewhere. This is preferable to raising expectations by providing training only to create subsequent disappointment when the student cannot find employment or does not cope with working in the commercial environment.

Another consideration is that if more work samples and situational samples are introduced into the assessment battery, face validity of the battery would be increased. This would result in increased student motivation as testing would present as more related to job/course expectations.

The assessment battery norms were developed retrospectively. There is no data available on whether the standardisation sample was statistically large enough, or had a satisfactory balance of racial and type of disability distributions, or was satisfactorily representative across educational level achieved and sex distributions (Kapes and Mastie, 1988). It is recommended that rather than using a global assessment score in respect of course selection, the criterion for specific course admission should be that students display the necessary specific course/skills attributes (profile).

The inclusion of selected test items from a recognised test is problematic in relation to validity. Question 10.1 was ostensibly included in the battery to determine the extent to which a person believes he is, or is not, master of his own fate. Question 10.2 was

(d) *Personal Enrichment Programme*

Skills/Attributes	Sub-Test Number/Name
English receptive language	Elsa Score
Precision and accuracy	4.2
Attention to detail	8.1
Motivation	8.1
Short term auditory memory	9.6
*English expressive language	Spoken English Score
*Co-operation with fellow students	}
*Positive attitude to College	} Not tapped
Time management	} in present
Ability to follow English verbal instructions	} assessment
Common sense and judgement	} battery
Ability to learn from demonstration	}

4.1.3.2 Perceptions obtained from multi-disciplinary team of professionals

The workshop participants' criticisms of the verbosity and lack of clarity of language in sub-test questions needs to be addressed. A well-documented criterion for constructing good test items is that instructions should be precise and not confuse the testee (Osterlind, 1989). Students assessment results may be affected by the lack of clarity of instructions especially considering that they are left to work independently with minimal assistance from the test administrator. A further consideration is that since English was the first language of only a minority of students at the College, the wording of sub-test questions is an important issue needing attention.

An example of a proposed change to sub-test wording is the instruction in question two which reads: "Here are four questions. For each one, five possible answers are given. Only one of these answers is correct. Please choose the one you think is correct by putting a circle around it." It was recommended that the instruction preferably read: "Circle the correct answer."

Skills/Attributes	Sub-Test Number/Name
*English reading skills	8.1
Motivation	8.1
Rationale action	2.0
Ability to follow English written instructions	8.1
Problem solving	2.0
*Planning	7.3, 7.1
Time management	}
*Awareness of importance of self-testing and reviewing	} Not tapped
Independent learning	} in present
*Understanding of measurement	} assessment battery
*Auditory sequencing	}

(c) *Junior Secretarial Course*

Skills/Attributes	Sub-Test Number/Name
Ability to follow English written instructions	8.1
Attention to detail	8.1
Short term auditory memory	9.6
*Short term visual memory	4.3, 9.2
Motivation	8.1
Precision and accuracy	4.2
English receptive language	Elsa Score
*Eye and hand co-ordination	Hand Functioning Screening Score
Concentration	8.1
Ability to follow English verbal instructions	} Not tapped
Ability to learn from demonstration	} in present
Time management	} assessment battery

Access College are listed below. Where the skill/attribute is measured in the assessment battery the number or name of the sub-tests which most strongly measure it are provided. Unique skills/attributes needed for course success are indicated using an asterix.

(a) *Computer Operator Course*

Skills/Attributes	Sub-Test Number/Name
Precision and accuracy	4.2
Attention to detail	8.1
*Flexibility in thinking	7.3
Problem solving	2.0
Ability to analyse	3.2
*Comparison and categorisation skills	4.5, 7.1
Rational action	2.0
Motivation	8.1
Concentration	8.1
Ability to follow English written instructions	8.1
*Ability to apply concepts taught	}
Independent learning	} Not tapped
Time management	} in present
*Ability to establish main points	} assessment battery
Common sense and judgement	}

(b) *Business Administration Course*

Skills/Attributes	Sub-Test Number/Name
Attention to detail	8.1
Precision and accuracy	4.2
Ability to analyse	3.2
Short term auditory memory	9.6
Concentration	8.1
*Numerical reasoning	8.1, 4.3
English receptive language	Elsa Score

prior to lecturing is the issue of criterion contamination if further validity studies with the assessment battery are to be conducted. An essential precaution in future criterion-related validity testing would be to make certain that the assessment battery results do not themselves influence the students' criterion status. This possible source of error is known as criterion contamination, since the criterion ratings became "contaminated" by the rater's knowledge of the students' assessment result (Anastasi, 1982) and associated response in the teaching context.

The lecturers' dissatisfaction with the present course selection procedure was supported by the results of an Anova which was conducted. The results of the Anova found that there was a significant relationship between the number of credits obtained on completion of training and the specific chosen course. It was evident from results that only in the business administration course were any diplomas obtained, ie. this was the only course where students achieved sixteen or more credits. No diplomas were achieved in the other courses in that students obtained less than sixteen credits. This is of great concern and suggests that either student selection and placement in the four courses needs revision or that course content in the three other courses needs to be modified so that it is congruent with students' abilities.

A recommended revision in relation to course placement is that students should be required to exhibit those skills/attributes deemed necessary for course success as measured by the relevant assessment battery sub-tests. Further research needs to be conducted to determine the score thresholds on assessment sub-tests which would qualify as adequate for course entry. This course placement method seems preferable to the present system where placement occurs according to a single, flat total assessment score. Based on the research conducted in this study students would need to demonstrate possession of the necessary skills/attributes for specific course placement. Measures need to be included in the battery to tap the necessary skills/attributes presently not tapped in the battery (see Table 3).

The names of the skills/attributes necessary for success in the four courses offered at

It is suggested that initially those sub-tests which most strongly measure skills/attributes necessary for success in all courses be dynamised. These are sub-test 4.2 (Precision and Accuracy), sub-test 8.1 (Attention to Detail and Motivation) and the new sub-test to be included in the battery which taps Time Management. Dynamising aspects of the battery by introducing test-teach-test, would provide an opportunity to tap learning potential and thus equalise the opportunity for possible success on the assessment battery.

Suggestions towards dynamising sub-tests 4.2 and 8.1 in the existing assessment battery using a test-teach-test approach are presented in Appendix 9.

The need for the introduction of a dynamic component was supported by the workshop participants who were concerned that learning potential was not tapped in the existing assessment battery.

4.1.3 Exploring the Perceptions and Levels of Satisfaction with the Existing Access College Assessment Battery and Course Selection Procedure

4.1.3.1 Perceptions Obtained from Lecturers

Some dissatisfaction with the existing assessment battery was expressed by course lecturers and the multi-disciplinary team of professionals who participated in the arranged workshop. Lecturers were dissatisfied with the existing course selection procedure as they felt that they would like feedback on student assessment results prior to training. It appears as if there is a schism between assessment and training. Since some lecturers felt that information prior to training might result in preconceptions it is suggested that assessment information should be made available to those who feel it would be useful. Vogel & Adelman (1993) strongly promote teaching modifications for students with disabilities and that lecturers have time to adapt their teaching methods accordingly.

A consideration in relation to lecturers having assessment information about students

means. The Welch test for equality of means, however, yielded a score which was significant at the 0.75 level and thus deserves mention. The mean assessment battery totals for students with psychiatric disabilities were significantly higher than the means of physically or cognitively disabled students ($p<.75$). This result suggests that modifications in testing students with cognitive or physical disabilities need consideration. According to Vogel and Adelman (1993) the most commonly provided testing modification is to allow extended time. Perhaps shortening the battery but allowing the same amount of time for battery completion might eradicate this discrepancy in assessment results. The result may also suggest that students with physical or cognitive disabilities have not had the opportunity, due to inadequate resources, to master the skills necessary for success on the battery. This would imply the need for learning potential to be tapped by the battery.

The variable "educational level achieved" was significantly related to total assessment score at the 5% level when differences in means were analysed by analysis of variance. It is not surprising that the mean assessment battery results of students with higher educational levels were significantly higher than those with less formal education. This finding gives weight to the perceived need for the inclusion of a dynamic assessment component to the battery. Given the past socio-political climate in South Africa many disabled students have not had the opportunity for quality education. The South African education system has been characterised by the unequal provision of resources and inferior Black teacher training. This has resulted in insufficient mediation and many students being left with inadequate cognitive skills. Further, many have had to leave school prematurely to seek gainful employment due to financial considerations. Given the diversity of the Access College student population, the introduction of test-teach-test methods should be considered. Further, on observation of actual classes, it was noted that course lecturers provided much mediation in the lecture setting. Classes were small (maximum of twelve students) which facilitated individualised tuition. The lack of tester participation and mediation in the assessment administration is thus incongruent with actual lecturer teaching methods where there is much mediation.

One potential shortcoming experienced in establishing content-related validity was the small size of the group of lecturers who determined the necessary skills/attributes. The size of the multi-disciplinary team of professionals who analysed the skills/attributes being tapped in the present battery was also small. These small sample sizes further reinforce the problem of subjectivity which is an issue in content validation. Kerlinger (1986) states that content validation is basically judgemental. The "judges" who determined the necessary skills/ attributes were the most competent judges available, however, being lecturers in the courses themselves. Unfortunately, the sample size was too small to do regressional analyses. Such analyses would have determined those assessment battery sub-tests which are most significantly related to success for the four courses.

4.1.2 Investigating the possible inclusion of a Dynamic Assessment Component in the Existing Assessment Battery

In order to assess the need for including a dynamic assessment component in the Access College battery, some important questions needed to be researched. One cannot assume that all students have had equal opportunities to develop the attributes/skills necessary for success on the assessment battery. Research was conducted to determine the significance of the variables of race, educational level and type of disability on total assessment score.

The variable "race" was not significantly related to total assessment score when differences in means were analysed by analysis of variance. This is surprising given that adverse political and socio-economic factors have played a major part in the educational and cultural deprivation suffered by Black South African pupils, as has the limiting disabling curriculum imposed by the system of Bantu Education (Burman & Reynolds, 1986). Reasons for this result may be small sample size implying that generalisability of this result is not applicable or that the disadvantage of disability cuts across race.

The variable "type of disability" was not significant when using analysis of variance for

which were identified in this research could be made in order to improve the usefulness of the battery.

The small sample size was a concern. Researchers differ as to the sample size necessary to achieve statistical power. Palmer et al (1992) mentioned that federal regulatory guidelines in the United States in 1970 suggested thirty as the minimum number of subjects for criterion-related validity studies to be technically feasible. Schmidt et al (1976), however, pointed out that criterion-related studies require hundreds of subjects in order to meet professional standards.

The nature of the group on which the validity coefficient was determined was a highly heterogenous disabled population. Owing to the small sample size it was impossible to determine the validity of the battery for different disability groups. Test validation is specific to the population sample and a test may be useful and valid in answering certain questions about one specific population and not others. The validity of a test therefore is not absolute and must be evaluated for different individuals (Hursh & Kerns, 1988). It is thus possible that the assessment battery may not have yielded equally high validity coefficients across disabilities. Another issue needing consideration is that the validity coefficient yielded may change over time because of changing course content or demands.

4.1.1.2 Content-related validity

Determining content-related validity involved the systematic examination of the assessment battery content to determine whether it covered a representative sample of the skills/attributes needed for success in the four courses. Clearly, good sub-tests make possible the valid interpretations of a test's scores. This study found that twelve of the thirty skills/attributes necessary for course success were not being tapped in the existing assessment battery and that many sub-tests were repetitive, making for a lengthy battery. In order to claim content validity, new tests need to be included in the assessment battery to tap the twelve skills/attributes which were not being tapped in the existing battery.

4. DISCUSSION AND CONCLUSION

4.1 Interpretation of Results

The study explored an existing assessment battery at Access College. The first issue researched was the validity of the assessment battery. Specifically, the criterion-related validity and the content-related validity were evaluated. The need for the possible inclusion of a dynamic assessment component was investigated by researching the effects of race, educational level and type of disability on assessment performance. The perceptions of satisfaction with the present assessment battery and course selection procedure were also investigated. Research was also conducted to determine which sub-tests on the assessment battery were the strongest measures of the skills/attributes deemed necessary for course success by course lecturers.

The interpretation of findings is undertaken according to the aims presented in the Rationale and Aims section.

4.1.1 Establishing the Validity of the Existing Access College Assessment Battery

The concept of validity "is the most important consideration in test development" (Osterlind, 1989 p.67) and thus, given the concerns with the existing Access College assessment battery, it was an important issue to research.

4.1.1.1 Criterion-related validity

The criterion-related validity of the assessment battery was found to be high. The students' assessment battery results were significantly correlated with final course results and the assessment battery was thus found to be a valid predictor of student trainability. Useful inferences can therefore be made from assessment battery scores regarding student trainability and the probability of course success. The Access College battery could therefore be retained as the core assessment instrument. Recommended revisions

3.4.2 Results of Correlations to Establish which Sub-Tests were the Strongest Measures of Necessary Skills/Attributes

The results of the correlations are provided in the Table below.

Table 12: Skills/attributes necessary for success in stated course(s) and number/ name of sub-test(s) on battery most strongly correlated with skill/attribute

Courses skill/attribute required for:	Skill/Attribute	Names or numbers of sub-tests
All four courses	Precision and accuracy Attention to detail Motivation	4.2 8.1 8.1
Jun Sec, Bus Ad, PEP	English receptive language Short-term auditory memory	Elsa Score 9.6
Jun Sec, Bus Ad, Comp Op	Concentration Ability to follow English written instructions	8.1 8.1
Bus Ad, Comp Op	Rational action Ability to analyse Problem solving	2.0 3.2 2.0
Bus Ad	Planning Numerical reasoning English reading skills	7.3, 7.1 8.1, 4.3 8.1
Comp Op	Flexibility in thinking Comparison and categorisation	7.3 4.5, 7.1
Jun Sec	Short-term visual memory skills Eye and hand co-ordination	4.3, 9.2 Hand functioning screening score
PEP	English expressive language	Spoken English score

From the above table it was evident that there were twelve sub-tests which were the strongest measures of the eighteen necessary skills/attributes.

From Table 11 and Figure 5 it is evident that the mean number of credits achieved for each course differed significantly. It was highest for business administration and lowest for personal enrichment. It is apparent that most students in all courses, excluding business administration, did not receive diplomas on course completion. This suggests that there was a problem with course selection for all courses excepting business administration.

This finding supports the College lecturers' concerns about course selection.

3.4 Determining which Assessment Battery Sub-Tests are the Strongest Measures of the Skills/Attributes Necessary for Success in the Four Training Courses

3.4.1 Procedure

The sub-tests of the assessment battery which tap the skills/attributes necessary for success in the four training courses were identified when the content validity of the battery was established. As sub-tests were repetitive and overlapped in terms of the skills/attributes tapped, those sub-tests which most strongly measured required skills/attributes were identified. This would allow one to delete ancillary sub-tests from the battery.

The Pearson Product Moment Correlation Coefficient was calculated to determine the strength of the relationship between each sub-test measuring a required skill/attribute and the total score of the remaining sub-tests which were considered to measure that skill/attribute. For each skill/attribute, the sub-test with the strongest correlation with the total skill/attribute score was identified. Where the absolute difference between two correlation coefficients was less than 0.2 both sub-tests were retained.

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7. The battery be researched for item bias such as gender bias.

static scores be researched.

2. The value of the provision of student assessment profiles to lecturers prior to lecturing be researched.

3. The standardisation and norming of the assessment battery for the different types of disabilities be researched.

4.5.2 General Research Possibilities Relating to Existing Battery

1. The validity of the assessment battery be determined for different disability groups as the validity of an assessment battery may vary among sub-groups.

2. The assessment battery be critiqued by a larger sample of multi-disciplinary professionals to confirm recommended revisions and to identify further amendments.

3. The perceptions of students who complete the assessment battery be re-researched in terms of their attitude and experience of it in such a way that contamination of results is avoided.

4. The course manuals for each of the four courses be studied by a statistically large enough group of professionals to supplement the views of the college lecturers in terms of what skills/attributes are necessary for success in the courses.

5. The effect be determined of other independent variables, such as age or number of years disabled, on performance in the assessment battery.

6. The construct-related validity of the assessment battery be explored as evidentiary support for validity should ideally be gathered from all categories of validity.

in that it only validates the assessment battery in terms of success. Other important criteria would be the ability of students to obtain and retain employment.

4. The student sample was heterogenous which made drawing conclusions difficult. Assessing the criterion-related validity of the assessment battery across disability was not possible because of small sample size. This would be important as an assessment battery could have high validity in predicting a particular criterion in one population and little or no validity in another (Anastasi, 1982).

5. The length of the study was six months as this is the duration of courses. In relation to final course results it was not possible to control for extraneous variables which may have influenced final course results. Given the type of student sample studied, issues such as illness may have had a significant effect on final course outcome.

6. The workshop format for determining the underlying skills/attributes measured in specific sub-tests and for eliciting professionals' views about the battery, may have been a limitation. Workshop participants' responses were verbal and thus individual opinions may have influenced or contaminated other participants' perceptions.

7. Time constraints did not allow for recommended assessment battery revisions to be implemented and researched.

8. Students' perceptions about the assessment battery appear to have been contaminated and thus do not provide useful information.

4.5 Suggestions for Further Research

4.5.1 Research Possibilities Specific to Revisions to Existing Battery Recommended in this Study

1. The consequence of admitting students to courses based on learning potential versus

11. To exclude those assessment battery sub-tests which are repetitive and include only those sub-tests which most strongly measure necessary skills/attributes (see Table 7). This would result in a shorter, more "user friendly" assessment battery.

4.3 General Implications of Results

This study, although somewhat limited, provides supportive data for the importance of validation and revision of assessment batteries. One cannot take validity for granted and one must research what can be inferred from test scores. Validity must be established with reference to the particular use or purpose of the assessment. Assessment batteries need to be regularly reviewed and revisions made where appropriate. This research provides a viable model of test validation and revision that can be replicated and further developed in the future.

This model is particularly important given the present worldwide controversy and debate pertaining to the validity and usefulness of psychometric testing. This is also most pertinent in South Africa where the issue of race, and historical inequality in terms of access to facilities for those with disabilities, is seen as a primary concern regarding the validity of psychometric tests.

4.4 Limitations of the Study

1. The size of the student, lecturer and multi-disciplinary team of professionals' groups was small and not randomly selected which limits generalisability of results.

2. As studies of validity are in respect of specific assessment tools or batteries and populations, the results of this study cannot be generalised. The procedures employed in this study can, however, serve as a model for other validity and revision studies.

3. The choice of final course performance (ie. number of credits obtained on course completion) as the only criterion for establishing criterion-related validity is a limitation

5. To make assessment battery results available, prior to training, to those lecturers who would like access. This research found that most lecturers would find the availability of such results, prior to training, useful in respect of course preparation.

6. To modify language in the assessment battery so that it is clearer and more concise. The rationale for this is that the workshop team felt the language to be verbose and confusing. This could disadvantage students, especially those for whom English is a second language.

7. To introduce more work samples in the assessment battery. (Work samples are work simulations that use the equipment found in an actual job). The workshop team expressed concern that there were so few work samples in the battery. The inclusion of more work samples would provide a clearer picture of ultimate employability and would increase the face validity of the battery.

8. To include situational samples in the assessment battery. (This involves placing the testee in a real work setting). The workshop team were concerned that there was no situational assessment component in the battery. The inclusion of situational samples would make testing less artificial and hopefully increase student motivation and thus performance.

9. To standardise the administration of the assessment battery sub-test "student goals and support systems". The workshop team felt that this would equalise students' chances of success on these sub-tests.

10. To place students in one of the four training courses according to whether they possess the necessary skills/attributes for success in that specific course, ie. how congruent they are with the profile of relevant skills/attributes (see lists page 69 to 71). Dissatisfaction with the present course placement method was expressed by College lecturers. This new method would result in more appropriate placement.

especially for students with a physical disability who are prone to fatigue. It is recommended that only those sub-tests which most strongly tap those skills/attributes necessary for course success be included in the battery. These sub-tests are 2, 3.2, 4.2, 4.3, 4.5, 7.1, 7.3, 8.1, 9.2, 9.6 and the hand functioning screening, Elsa and Spoken English scores. The inclusion of the above-mentioned thirteen sub-tests as well as new measures which tap the twelve skills/attributes necessary for success but not tapped by the present battery, would make for a shorter, more "user friendly" assessment battery.

4.2 Summary of Recommended Revisions to the Existing Assessment Battery

The following revisions could be considered:

1. To retain the existing assessment battery as the core instrument of a revised assessment battery as it was found to have high criterion-related validity.

2. To include measures in the battery to tap skills/attributes which are necessary for course success but that are not tapped in the existing battery (see Table 3). This would increase the content-related validity of the assessment battery.

3. To introduce a dynamic assessment component (test-teach-test) which would tap learning potential. Sub-tests 4.2 and 8.1 and a new sub-test which taps "time management" would be suitable as a starting point (see Appendix 9 for details). The rationale for this revision is that the research findings show that students with lower educational levels, and students with physical or cognitive disabilities were disadvantaged in the assessment battery.

4. To provide testing modifications for students with cognitive disabilities and those with physical disabilities. The research findings demonstrate that students with these disabilities perform more poorly on the assessment battery than students with psychiatric disabilities.

included supposedly to measure the degree to which a person experiences a sense of meaning and purpose in life. These variables are supposedly measured by the modified versions of the original tests which claim to measure them. When test items are haphazardly excluded from a test the testee can no longer claim that the intended construct is being measured. Cronbach (1960 in Sattler, 1982) points out that any departure from standard administrative procedures changes the meaning of scores. Not only were original test items excluded from these two sub-tests but the language of included items and test instructions was altered. Thus, it cannot be claimed that these sub-tests are valid. Another issue is that of locus of control in the South African context. Given the previous apartheid regime where racist laws strictly controlled the behaviour of the majority of people, it would be vital to consider how valid it would be to measure locus of control.

Standardisation implies uniformity of procedure in administering a test. If the scores obtained by different persons are to be comparable, testing conditions must be the same for all (Anastasi, 1982). When assessing student "goals and support systems", the multi-disciplinary team felt that the present practice of deciding, based on time constraints, that some students should be administered interview schedules whilst others should complete a written questionnaire, was problematic. Some students who are interviewed may be at an advantage as they have an opportunity to clarify questions, whilst others interviewed, who are stronger with the written than verbal modality, may be disadvantaged. Thus the criterion of time availability is not a justification for unstandardised test administration. It is recommended that uniformity of test administration be utilised for assessing student goals and support systems in the assessment battery.

4.1.4 Determining which Assessment Battery Sub-tests were the Strongest Measures of the Skills/Attributes Necessary for Success in the Four Training Courses

The assessment battery was felt to be lengthy by the assessment administrator and this concern was confirmed by the workshop participants. Sub-tests were found to be repetitive making for a lengthy assessment. The length of the battery is problematic

5.3. Here are some words that are often used in abbreviated (shortened) form. Three possible abbreviations are given for each. Please circle the abbreviation that you think is correct.

1)	that is	a)	C.O.D.
		b)	t.i.
		c)	i.e.
2)	for example	a)	P.A.Y.E
		b)	e.g.
		c)	H.P.
3)	important	a)	N.B.
		b)	V.I.P.
		c)	A.S.A.P.
4)	in respect of	a)	re
		b)	i.r.o.
		c)	resp.

SCORE: /4

5.4. Here are some words that are used in the world of business. Three possible meanings are given for each word. Please circle the meaning that you think is correct.

1)	cheque	a)	a piece of papor
		b)	a written instruction to the bank
		c)	a test
2)	manager	a)	person in charge of running a business
		b)	person who works for a bank
		c)	school principal
3)	employee	a)	person att nding school
		b)	person who has a job and earns a salary
		c)	person who is unemployed
4)	labour	a)	physical and mental effort/ work
		b)	transport
		c)	land
5)	sales	a)	found on ships
		b)	goods which are bought
		c)	goods which are sold

SCORE: /5

5. QUESTION 5

5.1. Fill in the blank spaces using these words:

receptionist	secretary
telephonist	data capturer
cashier	clerk

1) A _____ operates a switchboard.

2) A _____ receives and deposits money.

3) A _____ must be able to type well, make appointments and take telephone messages.

4) A _____ attends to routine office work like sorting mail, filing and sending out orders.

5) A _____ puts information into a computer system.

6) A _____ greets visitors to the company and directs them to the right place.

SCORE: /6

5.2. An abbreviation is a short way of saying something. What do these abbreviations and terms mean? Write your answers on the lines.

1) A.S.A.P. _____

2) C.O.D. _____

3) Dept. _____

4) per annum _____

5) S.A.S.E. _____

SCORE: /5

4.5. Here is a list of company names. Each name has been written twice, on the left and on the right. Read through these pairs carefully. If the company name has been spelt exactly the same on both sides of the page, put a tick (✓) on the line. If the spelling is different, put a cross (X) on the line.

eg:	Van Aswegen	✓	Van Aswegen
	Cargill Crain Co.	X	Cargil Crain Co.

1.	Humle Co	___	Hulme Co
2.	Floyd Gibbons	___	Floyd Gibbens
3.	L.T. Piver	___	L.T. Piver
4.	Dol de Publishing Co.	___	Cole Publishing Co.
5.	Foley and Co	___	Foley E Co
6.	Aladd'n Co	___	Aladdin Co
7.	Chase Bag Corp	___	Chase Bag Cor
8.	Arthur Bier & Co	___	Arthur Bier Co
9.	Mydall Cain	___	Mydell Cain
10.	M.C.D. Bordon & Sons	___	M.C.D. Bordon
11.	Midland Nat'l. Bank	___	Midland Nat'l. Bank
12.	Hixen Lt'd	___	Hixon Lt'd
13.	R. Weiner	___	R. Weiner
14.	Pacqueres	___	Pacqueris
15.	Ponemah Mills	___	Ponemah Mills
16.	Keeley Institute	___	Keeleys Institute
17.	Jim Pepper	___	Jim Pepper
18.	Pictorial Review	___	Pictorial Review
19.	Colette Cartier	___	Colete Cartier
20.	Wiebusch & Warner	___	Weibusch & Helger

SCORE: /20

4.4. For this question, each of these letters has a matching number:

C	J	L	S	T	U	V	X	Z	O
1	2	3	4	5	6	7	8	9	0

Using the information above, write the correct numbers next to the letters below. Be as fast and as accurate as you can.

For example: CZJT 1925

JOVS 2074

1. TZLO _____
2. XTO _____
3. VUOS _____
4. JSUL _____
5. ZSZC _____
6. XLTU _____
7. VUCO _____
8. JUXL _____
10. ZCZU _____

SCORE: /10

4.3. This question asks you to do some simple sums, using letters and numbers. First read this information:

a = 1	b = 2	c = 3	d = 4	e = 5
f = 6	g = 7	h = 8	i = 9	j = 0

Now find the answers to the sums below.

For example: a + e = 1 + 5 = 6

1) a + b = _____

2) e + d = _____

3) c + e = _____

4) f + h = _____

5) b + c - a = _____

6) f + g - j = _____

7) a + b + c - f = _____

8) a + b + c = _____

9) b + c + d = _____

10) c + d + e = _____

11) b - a = _____

12) c - b = _____

13) d - c = _____

14) i - j = _____

15) (g + h) - (c + d - f) = _____

SCORE: /15

4. QUESTION 4

4.1 There are lots of letters in the box below. Please cross out all the letters "E".

B D H E I F H E H I E G I C H E I C B D A C H F B E D
A C D A F C I H C F B A E I N H R T W P E O B G F C T
O M B H G W A X Z O P M B H R E O T V C B H S D E O M
J H P Q I R T C X M J E H B D I B O N K L G V W A K E
I L B J C N F C V I H J T E B E F N T I O E B C G V T
I L P M S X Z A O Q F E H G C B E W O P M J Y T A Z A

SCORE: /

4.2. Below are some boxes. Next to each box which has a word or number in it there is an empty box. The empty box may be on the left or on the right. Make the empty box look just like the one next to it by copying in the word or number.

PYRAMID	
DESERT	
	IOUAE
PROD	
	444554
APPLE	
891698	
	599439
	MUDDLE
BOTTOM	

CASTLE	
ADMIT	
	INTERNAL
108001	
	SPONGE
	PDRPDP
HAMET	
	599439
LINDUM	
WAMVH	

SCORE: /20

3.2 The next five questions are about picture patterns. In each question you are shown some picture blocks on the left side of the page. The pictures in these blocks follow a certain pattern, from left to right. Work out what this pattern is.

On the right side of the page next to each question are some more blocks, A, B, C and D. One of these will be the next block in the pattern on the left. Which one? Put a circle around A, B, C or D.

1) 

2) 

3) 

4) 

5) 

SCORE: /5

2.3. One of the numbers in this series is wrong. What should the number be?

8 16 32 64 128 192

Answers:
a) 356 b) 236 c) 156 d) 256 e) none of these

2.4. I have 3 large boxes. In each of these boxes there are 4 smaller boxes. In each of the smaller boxes there are 2 even smaller boxes. How many boxes do I have altogether?

Answers:
a) 39 b) 41 c) 24 d) 16 e) none of these

SCORE: /4

3. QUESTION 3

3.1 Here are some series of numbers. In each one, a certain pattern is followed. Try to work out the pattern. Then work out which number comes next in the series. Choose your answer from the five possible answers given in the block on the right. Put a circle around the correct answer in the block.

							POSSIBLE ANSWERS				
3	6	9	12	15	18	?	19	20	21	22	23
10	11	13	14	16	17	?	18	19	20	21	22
46	48	52	58	66	76	?	78	88	98	108	118
35	33	31	29	27	25	?	20	21	22	23	24
27	26	28	27	29	28	?	26	27	28	29	30

SCORE: /5

APPENDIX 2

ACCESS COLLEGE ASSESSMENT BATTERY

ACCESS COLLEGE

ASSESSMENT BATTERY FOR NEW STUDENTS

NAME: _____ DATE: _____

1. QUESTION 1

1.1 Please write three sentences on the lines below. The first sentence should be about where you were born. The second sentence should tell who is in your family. The third sentence should be about what you would like to learn at Access College.

_____

_____

_____

_____

_____

_____

_____

_____

SCORE: /6

2. QUESTION 2

Here are four questions. For each one, five possible answers are given. Only one of these answers is correct. Please choose the one you think is correct by putting a circle around it.

2.1. How many people are there in this family?
A man, his wife, his three sons and their wives and three children in each son's family.

Answers:
a) 18 b) 15 c) 11 d) 14 e) none of these

2.2. The letters below have been picked out of the alphabet according to a pattern. What letter comes next?

B E H K

Answers:
a) L b) O c) M d) N e) none of these

Appendix 1

Key to Abbreviations Used in Some Tables, Figures and Appendices

Abbreviation	Term
Bus Ad	Business Administration Course
Jun Sec	Junior Secretary Course
Comp Op	Computer Operator Course
PEP	Personal Enrichment Programme
Time Manag	Time management
Precis & Acc	Precision and accuracy
Attent Detail	Attention to detail
Eng Recept Lang	English receptive language
Shrt Aud Mem	Short term auditory memory
Concentratn	Concentration
Fol Eng Writ Instr	Ability to follow English written instructions
Rationl Actn	Rational action
Ab/Analyse	Ability to analyse
Prob Solvng	Problem solving
Indep Learn	Independent learning
Fol Eng Verb Inst	Ability to follow English verbal instructions
Learn Demo	Ability to learn from demonstration
Cm Sen & Jdg	Common sense and judgement
Undrst Meas	Understanding of measurement
Eng Reading Skills	English reading skills
Auditry Seqn	Auditory sequencing
Aw Imp Slf T	Awareness of importance of self-checking
Numrcl Reas	Numerical reasoning
Flex Thinking	Flexibility in thinking
Apl Cncpt Tau	Ability to apply concepts taught
Cmprtv & Catg	Comparison and categorisation
Est Main Pnts	Ability to establish main points
Shrt Vis Mem	Short term visual memory
Eye-Hnd Coord	Eye and hand co-ordination
Eng Expre Lang	English expressive language
Pos Att Collg	Positive attitude to college
Co-Op Fel Stu	Co-operation with fellow students

Intelligence and Special Abilities. Allyn and Bacon Inc, 143-189.

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Super, D.E. & Crites, J.O. (1962). *Appraising Vocational Fitness* New York: Harper and Brothers

Uys, R., Du Preez, N.P., Jacobs, A.L. and Van Niekerk, E.A. (1990). *Die Gestremde Persoon as Werknemer*. Potchefstroom: University Press.

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Wechsler, D. (1974). Wechsler Intelligence Scale for Children - Revised (WISC-R): Description and WISC-R sub-tests. In Sattler, M.(Ed). Second Edition. *Assessment of Children's*

9.4 For each question below ,ou are given several words or numbers. Your examiner will say one of these words or numbers out loud. From memory, choose the word or number that you heard. Tick that word or number.

1)	envelope	elephant	elegant	ebulliant
2)	leaves	leans	leads	leaps
3)	43871	43971	43817	43881
4)	MSDos	MFDos	MSOss	MNDos
5)	precedent	presenter	present	preference
6)	May 1 1939	March 1 1939	March 1 1929	

SCORE: /6

9.5 Your examiner will say three sentences out loud. After you have heard each one, please write down what you can remember hearing.

1) _____

_____

_____

2) _____

_____

_____

_____

3) _____

_____

_____

_____

SCORE: /4

9.2 Kim's game

The rules of Kim's game will be explained to you. After seeing the twenty objects provided, please write down as many as you can recall in 3 minutes:

1. _____	11. _____
2. _____	12. _____
3. _____	13. _____
4. _____	14. _____
5. _____	15. _____
6. _____	16. _____
7. _____	17. _____
8. _____	18. _____
9. _____	19. _____
10. _____	20. _____

SCORE: /20

9.3 Please draw from memory the three diagrams which will be shown to you.

1)



2)



3)



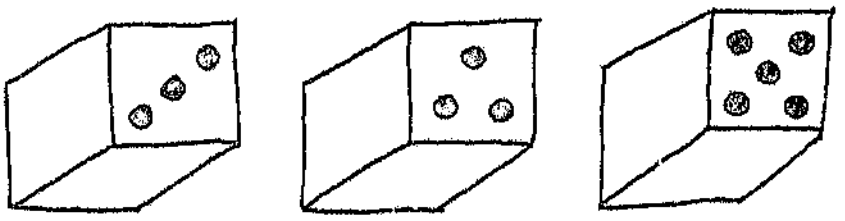
SCORE: /6

9. QUESTION 9

DO NOT DO THIS QUESTION ON YOUR OWN -
IT WILL BE DONE IN A GROUP, WITH YOUR EXAMINER

9.1 For each question below you are given three pictures. Your examiner will show you a big copy of one of them for a very short time. From memory, choose the picture that is like the one you were shown. Tick that picture.

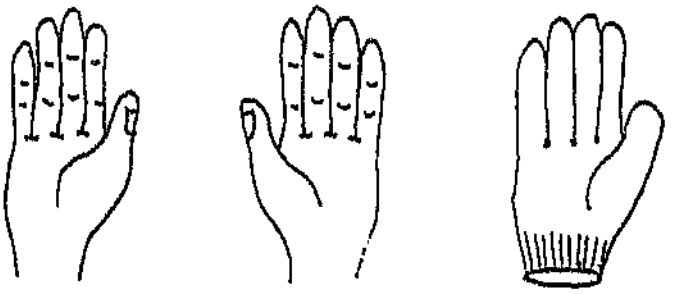
1)



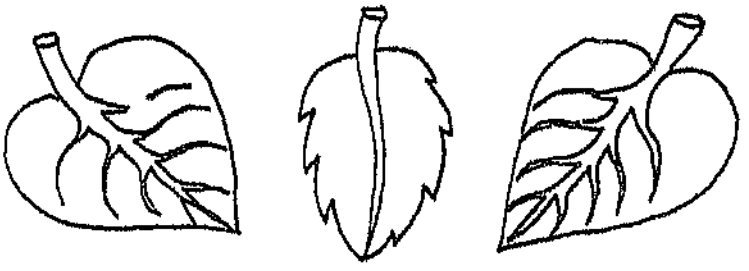
2)



3)



4)



SCORE: /4

8.2 Do these calculations, using a calculator.

2903.64			
387.49			
.48			
4.17			
.63			
5341.64			
4.81			
368.26	65.89	98.33	7265
+ 9429.80	-27.96	-69.47	-5390
_____	_____	_____	_____

946 x 918 = _____

301009 - 21519 = _____

SCORE: /6

8.3 Complete these, using a calculator if you need to.

1) 10 % of R896.54 = _____

2) R452.38 x 5 % = _____

3) 13 + 7 - (3 x 3) = _____

4) (4 x 6) + (8 divided by 2) + 2 = _____

SCORE: /4

8. QUESTION 8

8.1 There are many numbers written below. Using a calculator, first add up each row (row 1 up to row 12) and write the totals in the spaces on the right.

Then add up each column (columns A, B and C) and write the totals in the spaces at the bottom.

Finally, work out your grand total and write this in the box at the bottom right corner of the page.

	A	B	C	TOTALS
1)	117	360	96	_____
2)	211	453	292	_____
3)	264	162	292	_____
4)	195	243	252	_____
5)	168	154	120	_____
6)	180	135	159	_____
7)	139	180	112	_____
8)	112	141	264	_____
9)	270	500	302	_____
10)	372	129	399	_____
11)	519	99	132	_____
12)	176	124	427	_____
	_____	_____	_____	
TOTALS	_____	_____	_____	GRAND TOTAL

SCORE: /15

A. Give the codes for these items:

1) Tins painted white and labelled, on the middle shelf. | | | | | | | | |

2) Large red-painted tins with labels. | | | | | | | | |

3) Small blue-painted tins with no labels. | | | | | | | | |

B. Describe these items:

1) | 0 | 2 | | 8 | 1 | 2 | | B |

_____ _____

_____ _____

2) | 0 | 1 | | 8 | 1 | 3 | | C |

_____

_____

SCORE: /5

7.3 Most companies have a code list or catalogue to keep track of their stock. Each item is given its own code number. This depends on the item's size, shape, colour, location or other details. Codes are used to simplify people's jobs, prevent mistakes and keep the company's business private.

Here is a code used by a food company.

DESCRIPTION	CODE
SHELF	
- tins on the top shelf	01
- tins on the middle shelf	02
- tins on the bottom shelf	03
SIZE	
- large tins	811
- medium tins	812
- small tins	813
STAGE OF PROCESSING	
- not painted or labelled	A
- painted but not labelled	B
- painted and labelled	C

NOTE: Large tins are found on the bottom shelf, medium tins are found on the middle shelf and small tins are found on the top shelf.

For example: A small painted tin, not labelled, would have the code

0	1		8	1	3		B

7.2 Every company has certain fixed assets (things which can be used over and over), like furniture, counters, cash registers, typewriters, cars. Companies also have certain expenses which must be paid over and over again, like rent, stationery, electicity, telephone bills, cleaning materials and wages.

Divide the words below into ASSETS and EXPENSES by writing them under the correct headings.

computers	filing cabinets
desks	chairs
telephone bills	stationery
scooter	refreshments
packing materials	rent
typewriters	toilet paper

ASSETS

EXPENSES

SCORE: /12

7. QUESTION 7

7.1 Here is a list of different things. Some of them belong in the category "stationery", some in the category "books" and some in the category "crockery". Please organise them into these categories by re-writing the words under the right heading in the space provided.

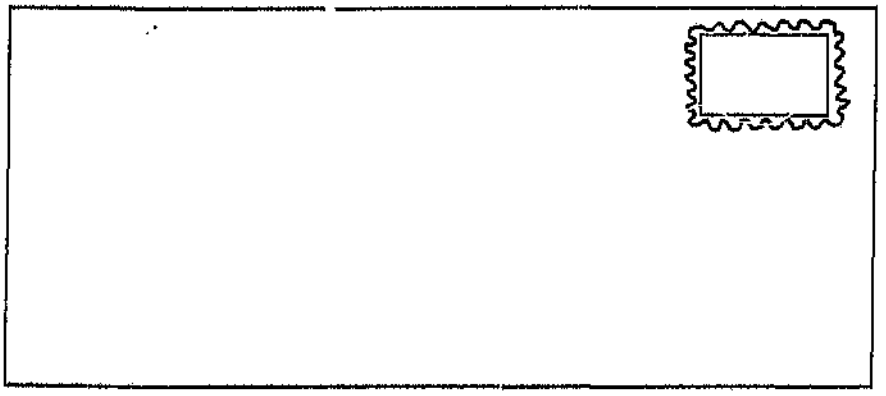
paper	envelopes
bibles	dictionaries
plates	coffee mugs
teacups	scissors
glue	textbooks
reading books	rulers
pens	paper clips
saucers	sugar bowls
milk jugs	encyclopaedias

STATIONERY	BOOKS	CROCKERY

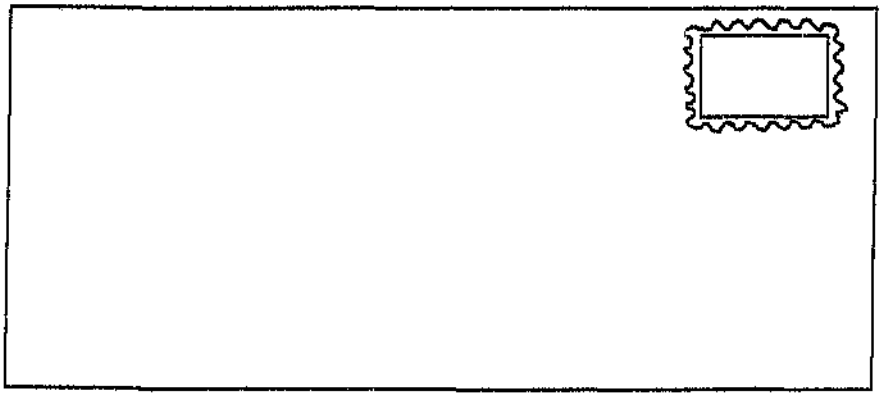
SCORE: /18

6.4 Here are two addresses. Some mistakes have been made in the way they are written. Please correct the mistakes and re-write the addresses on the envelopes below.

R H Smith Mr
Discovery 62 Road
SPRINGS
1560



Mrs Dube L
15 Street Sun
2000
JOHANNESBURG



SCORE: /5

6.2 Here are five amounts of money. Please rewrite them in order of size on the lines below. Start with the smallest amount on the top line and end with the largest amount on the bottom line.

R 1009.96

R 5620.00

R 120.50

R 6874.14

R 1010.00

_____

_____

_____

_____

_____

SCORE: /5

6.3 Here are five invoice numbers. Please rewrite them in numerical order on the lines below.

Invoice A168
Invoice A107
Invoice A96
Invoice A125
Invoice A140

_____

_____

_____

_____

_____

SCORE: /5

5.5. Here are five more words used in the world of business. Please match up each word on the left with the correct meaning on the right, by drawing a line between them.

money	protection
insurance	a service providing money
a business	rands and cents
a bank	a boss
an employer	a profit-making organisation

SCORE: /5

6. QUESTION 6

6.1 Here is a list of names. Please rewrite all the names in the block provided, arranging them in alphabetical order (from A to Z) according to the surname.

1. Greene Ms
2. Masutha E.V.
3. Kerr Norma
4. Fourie P.A.A.
5. Dlamini, Thoko
6. Young E.D.
7. Mathabela D.D.
8. Venter Sakkie
9. Briscoe S.G.
10. Kemp Dr. V.D.

SCORE: /10

1 = strongly disagree 2 = disagree 3 = neutral		4 = agree 5 = strongly agree	Bus Ad	Comp Op	Jun Sec	PFP
3	Time management					
4	English receptive language (understanding language)					
5	English expressive language (speaking)					
6	Flexibility in thinking (shifting perspective)					
7	Precision and accuracy					
8	Ability to apply concepts taught					
9	Comparison and categorisation					
10	Analysis					
11	Synthesis					
12	Ability to establish main points					
13	Problem solving					
14	Understanding of measurement					
15	English reading skills					
16	Written language skills					
17	General knowledge					
18	Verbal reasoning					
19	Commonsense and judgement					
20	Short term auditory memory					
21	Long term auditory memory					
22	Short term visual memory					
23	Long term visual memory					
24	Abstract reasoning					
25	Visual motor co-ordination					
26	Psychomotor speed					
27	Attention to detail					
28	Manual dexterity					
29	Visual alertness					
30	Motivation					

11. To what extent do you believe that the present assessment battery allows you to anticipate individual problems likely to be encountered in training?

12. What support, if any, is provided to students who may be struggling in your subjects?

13. Any further comments about the present assessment battery?

14. To what extent do you agree that each of the following underlying skills/attributes are necessary for success in the four courses offered at Access College? Please indicate your responses on a five-point scale where:

1 = strongly disagree
2 = disagree
3 = neutral
4 - agree
5 = strongly agree

It is important that you provide answers for the four courses separately. If you have not had any involvement with a particular course please indicate N/A instead of using the five-point scale. (If you need clarity about the definition of a skill/attribute please put your hand up):

1 = strongly disagree 2 = disagree 3 = neutral		4 = agree 5 = strongly agree	Bus Ad	Comp Op	Jun Sec	PEP
1	Planning					
2	Rational action (versus impulsivity)					

8.1	Bus Ad Course	1	2	3	4	5
8.2	Comp Op Course	1	2	3	4	5
8.3	Jun Sec Course	1	2	3	4	5
8.4	PEP Course	1	2	3	4	5

9. The current assessment procedure at Access involves a full day of testing involving pen and pencil tasks. What changes, if any, do you think could improve the present assessment procedure?

10. At the commencement of a new group of students are you given any information about the individual students performance on the assessment battery? (Please tick appropriate response):

Yes/Sometimes		*Please go to Q 10.1*
No		*Please go to Q 10.2*

10.1 Do you find this information useful or not? (Please elaborate):

10.2 Would such information be useful or not? (Please elaborate):

Full-time	
Part-time	

4. For how long have you been involved in student training? _____ years _____months

5. For how long have you been involved in providing training at Access College? _____years _____months

6. What is your main method of instruction with students, eg. discussion groups, lecturing?

_____

_____

_____

7. Please indicate on the rating scale/s how much **individual** tuition you generally engage in within the classroom context with the average student from the four different courses. (Please place an **X** on the scale/s below at the appropriate place or **N/A** if you are not involved with students from a particular course):

		Much (100%)	**Moderate (50%)**	**None (0%)**
7.1	Bus Admin Students			
7.2	Comp Op Students			
7.3	Jun Sec Students			
7.4	PEP Students			

8. To what extent do you think that criteria are satisfactory for the selection of your students? Please indicate your response by placing an **X** on the five-point scale where:

1 = very satisfactory ☐
2 = unsatisfactory ☐
3 = neutral ☐
4 = satisfactory ☐
5 = very satisfactory ☐

If you are not involved in a course please indicate by putting N/A on that scale:

NAME (please print): _____

PLEASE COMPLETE ALL THE FOLLOWING QUESTIONS :

1. For which course/s do you presently provide training? (Please tick appropriate course/s):

Business Administration Course (Bus Ad)	
Computer Operations Course (Comp Op)	
Junior Secretarial Course (Jun Sec)	
Person Enrichment Programme (PEP)	

2. Please tick the specific subjects in which you conduct training:

Functional English		Computer Literacy	
Business English		Lotus Elementary	
Typing Elementary		Data Capture	
Typing Intermediate		Word Perfect 5.1	
Telephone Manner		Harvard Graphics	
Office Skills		Employment Skills	
Storekeeping		MS DOS Elementary & Intermediate	
Study Skills			
Telesales		Computer Management	
Bookkeeping		Lotus Intermediate	
Accountancy		Quattro Pro 4	
Business Calculations 1		Data Capture	
Business Calculations 2		Dbase 3+	
Turbocash		Windows 3.1	
Small Business Course			
Other Subjects:			

3. Are you employed part-time or full-time at Access College?

SELF-ADMINISTERED QUESTIONNAIRE COMPLETED BY COLLEGE LECTURERS

Dear Respondent

The attached questionnaire forms part of my research requirements for the Masters in Educational Psychology degree. It would be appreciated if you could complete this questionnaire which focuses on firstly, gauging lecturers' attitudes to the Access College assessment battery and secondly, determining which skills are necessary for course success.

The questionnaire should take no longer than approximately 20 minutes to complete.

Your assistance and co-operation is greatly appreciated.

Yours sincerely

GLYNDA BLOMSON
EDUCATIONAL PSYCHOLOGY INTERN

APPENDIX 3

ASSESSMENT BATTERY RESULTS

ACCESS COLLEGE

SCREENING TESTS: RESULTS

NAME:_____ DATE:_____

SCORE: 1 = poor
2 = fair
3 = good

TEST	SCORE	COMMENTS
English readiness:		
ELSA score: _____..	...	
spoken English.....	...	
communicative effectiveness..	...	TOTAL SCORE:
Reasoning:		
Logical.....	...	
Sequential		TOTAL SCORE:
Concentration:		
Visual scanning.....	...	
Accuracy/alertness.....	...	
Sustained attention.....	...	
Proofreading		TOTAL SCORE:
General commercial knowledge		TOTAL SCORE:
Subject trainability:		
1) copying and organisation		TOTAL SCORE:
2) categorization		TOTAL SCORE:
3) use of the calculator		TOTAL SCORE:
4) following instructions		TOTAL SCORE:
Memory:		
Visual.....	...	
Auditory		TOTAL SCORE:
Motivation:		
- locus of control		
- purpose in life		
- self-expressed goals		TOTAL SCORE:
Hand function/fine coordination	...	
Speed of work		TOTAL SCORE:
Support systems/resources		TOTAL SCORE:

GRAND TOTAL:_____

PROBLEM AREAS	COURSE SUGGESTED	COURSE SELECTED

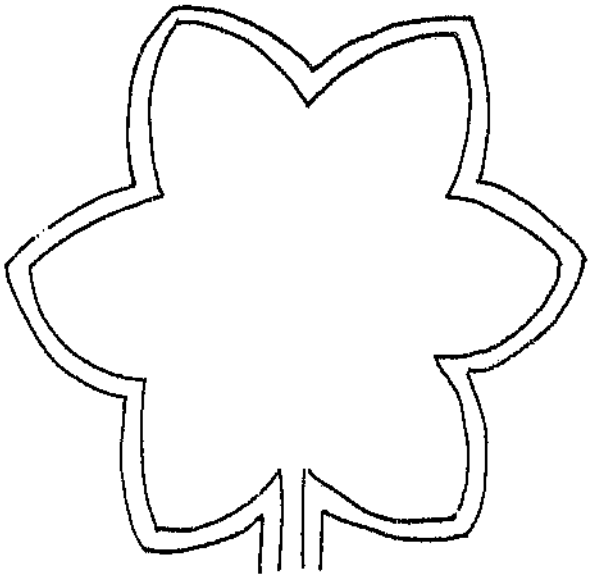
A C C E S S C O L L E G E

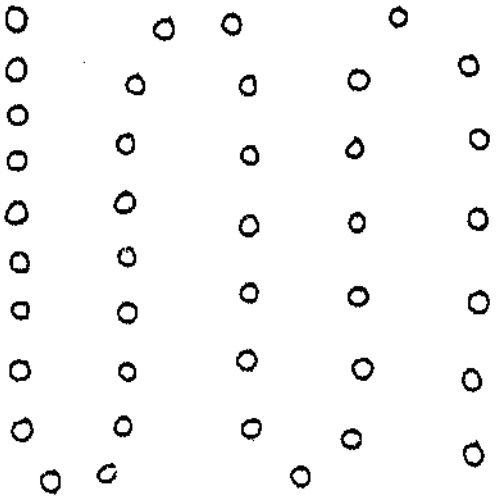
HAND FUNCTION SCREENING

SIGNATURE: _____ DATE: _____

Which hand do you use to write?
[ ] my right hand
[ ] my left hand

Have you ever changed from writing with your right hand to writing with your left hand, or the other way around?
[ ] yes
[ ] no













Please write a sentence in block letters:

_____

Please write a sentence in your normal handwriting:

_____

Please write all the numbers from 1 to 10:

_____

GOALS AND SUPPORT SYSTEMS

NAME: _____ DATE: _____

What are your career goals?

Do your family and friends support you in these goals?

Do you have a quiet place to study where you live?

Will you be able to afford stationery and a book bag?

Do you have any financial problems?

10.2 Again, here are some pairs of statements. Just like for the last question, please read each pair carefully and choose the statement with which you agree the most. You may partly agree with both statements, or you may not completely agree with either of them, but you must choose one statement by putting a tick in the box next to it.

1) I am usually
   [ ] - bored with my life
   [ ] - excited and interested in life

2) In my life I have
   [ ] - no goals or aims at all
   [ ] - very clear goals and aims

3) If I could choose, I would prefer
   [ ] - never to have been born
   [ ] - to have another nine lives like this one

4) After retiring, I will
   [ ] - do many things I did not have time to do while working
   [ ] - spend the rest of my life enjoying doing nothing

5) My life is
   [ ] - empty, filled with despair
   [ ] - brimming over with good and exciting things

6) In thinking of my life, I
   [ ] - usually wonder why I exist
   [ ] - usually see a reason for being here

7) The world around me
   [ ] - completely confuses me
   [ ] - makes a lot of sense to me

8) I think of problems in my life as
   [ ] - challenges to be overcome
   [ ] - setbacks and obstacles to my progress

9) With regard to suicide, I have
   [ ] - thought of it seriously as a way out
   [ ] - never given it a thought

10) My future is
   [ ] - under my own control
   [ ] - a complete mystery to me

SCORE: /10

10. QUESTION 10

10.1 Here are some pairs of statements. Please read each pair carefully and choose the statement with which you agree the most. You may partly agree with both statements, or you may not completely agree with either of them, but you must choose one statement by putting a tick in the box next to it.

1) [ ] - Children get into trouble because their parents punish them too much.
   [ ] - The trouble with children nowadays is that their parents are too soft on them.

2) [ ] - Many of the unhappy things in people's lives are partly due to bad luck.
   [ ] - People's misfortunes result from the mistakes they make.

3) [ ] - One of the major reason we have violence is that people don't know how to resolve conflicts.
   [ ] - There will always be violence, no matter how hard we try to stop it.

4) [ ] - In the long run, people get the respect they deserve in this world.
   [ ] - Unfortunately, some people's worth is not recognized no matter how hard they try.

5) [ ] - No matter how hard you try, some people will just never accept you.
   [ ] - People who are not accepted just don't know how to get along with others.

6) [ ] - Becoming a success takes hard work; luck has little or nothing to do with it.
   [ ] - Getting a good job and being successful is just a matter of luck.

7) [ ] - There are certain people who are just no good.
   [ ] - There is something good in every person.

8) [ ] - One should always be willing to admit mistakes.
   [ ] - It is best to cover up your mistakes.

9) [ ] - Teachers who like you give you better marks.
   [ ] - The harder you study, the better marks you get.

10) [ ] - What I do with my life depends on me.
    [ ] - You have to take life as it comes.

SCORE: /10

9.6 Your examiner will say three telephone numbers out loud. After you have heard each one and done what the examiner tells you to do, please write down whatever you can remember of the number.

1) _____

2) _____

3) _____

SCORE: /3

9.7 Your examiner will say a long list of words out loud. All of the words you will hear are written down below. They are mixed in with a lot of words that you will not hear spoken aloud.

After the examiner has finished speaking, please read through the lists below and tick all the words you remember hearing.

fish	typewriter	watermelon
armchair	gold	diploma
handshake	icicle	film
teacher	flowerpot	coffee
movie	dog	journey
taxi	preacher	college
children	vegetables	student
file	telephone	potato
pupil	doorbell	textbook
window	sheep	banana
hot	mad	strength
hate	chocolate	football
university	music	trip
typist	medicine	icecream
memory	ear	lecturer

SCORE: /

- Spatial Skills (concept of rows and columns)
- Calculator Skills
- Directionality (left to right).

Cognitive dysfunctions such as blurred and sweeping perception would be identified and mediated too.

(c) Phase Three - Test

A similar task to the original one would be presented to the student to complete. A learning potential score would be obtained by subtracting the post-test scores from the scores obtained on the initial test and comparing qualitative scores.

An example of mediating intentionality and reciprocity, meaning and transcendence for the skill of copying would be as follows: The mediator would prepare the group for the task by focusing, defining and explaining the activity, using frequent questions through discussion and explaining concepts not understood (intentionality and reciprocity). Mediating meaning would involve locating the issue of copying in a meaningful context - students could be encouraged to ask questions about why copying is an important skill in the business world. Mediating transcendence would involve applying ideas to a broader context. Students could be encouraged to discuss where else can they use the skill of copying in everyday life and in the work context. It would be important to link copying with activities such as data capturing.

It would also be important in the mediation phase to mediate whatever cognitive dysfunctions manifest during the test phase. These would be elicited through tester observation and through discussion. An example of a possible cognitive dysfunction could be impulsivity. Here one would need to provide strategies such as working from top to bottom, if the student knows the word to write it, if not, to copy the word letter by letter and work systematically.

(c) Phase Three - Test

The post-teaching phase presents a variation of the original task and the ability to adapt and generalise from the teaching is analysed.

In the post-test the student is again given a score out of twenty for accuracy and a qualitative score for neatness. An estimate of learning potential is obtained by comparing the scoring of the testee's initial performance and interpretation of the cognitive strategies used, with those of the post-teaching test.

2. Suggestions for Dynamising Sub-test 8.1 (Attention to Detail and Motivation)

(a) Phase One - Test

The student is given sub-test 8.1 as it is presented in the existing assessment battery. The time limit for completion is eight minutes. The student is allocated a score out of sixteen according to how many of the sixteen calculation were correct. A qualitative score is given for student motivation.

(b) Phase Two - Teach

The mediation phase would follow Feurestein's (1979) principles of mediation and cognitive functions and dysfunctions.

Mediation would include mediating intentionality and reciprocity, meaning and transcendence of the following:

- Addition

Appendix 9

SUGGESTIONS FOR DYNAMISING SUB-TESTS 4.2 AND 8.1 OF THE BATTERY

(It must be noted that the mediation phase would be dependent on the particular context and analysis of cognitive dysfunctions and that more criteria of mediation would be included than presented in the examples below).

1. Suggestions for Dynamising Sub-test 4.2 (Precision and Accuracy)

(a) Phase One - Test

The student is given sub-test 4.2 to complete "cold". There is a time limit of five minutes to complete the task and no mediation or intervention from the tester is permitted.

The student is given a score out of twenty according to the number of words he/she spells correctly within the time limit. This would constitute the accuracy score. A second qualitative score could be assigned to the student for neatness on a continuum of "poor", "average" or "good".

(b) Phase Two - Teach

This is the mediation stage and it would follow Feuerstein's (1979) principles of mediation and cognitive functions and dysfunctions (for more information please refer to chapter 1).

In this stage the student is given the necessary skills and strategies to master the precision and accuracy task. The giving of clues, questioning, focusing, suggesting and summarising are typical activities the examiner engages in to assess the intervention required in this stage.

Mediation would include mediating intentionality and reciprocity (preparing appropriately) meaning (giving reasons for) and transcendence (showing the applicability) of the following:

- Copying
- Precision and Accuracy
- Self-Checking
- Neatness
- Speed.

1) About how long did it take you to finish the assessment test? How many hours?

_____

2) Did you find the questions clear? (Please show your answer by putting a cross in the right box). Yes ☐ No ☐

3) Did you find the assessment battery long or short? Did it make you feel tired or did it motivate you? (Please show your answer by putting a cross over the right number).

Long	**1**	**2**	**3**	**4**	**5**	**Short**
Tiring	**1**	**2**	**3**	**4**	**5**	**Motivating**

4) The assessment was done to try and make sure you are ready and able to train at Access College. Do you feel that it gave a fair result? (Please show your answer by putting a cross in the right box). Yes ☐ No ☐

Please explain your answer: _____

_____

_____

5) How do you think the assessment test should be changed?
Why do you think these changes are needed?

_____

_____

_____

_____

_____

_____

_____

6) Do you have any other comments about the assessment battery?

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR HELP.

1) About how long did it take you to finish the assessment test? How many hours?

_____

2) Did you find the questions clear? (Please show your answer by putting a cross in the right box). Yes ☐ No ☐

3) Did you find the assessment battery long or short? Did it make you feel tired or did it motivate you? (Please show your answer by putting a cross over the right number).

Long	**1**	**2**	**3**	**4**	**5**	**Short**
Tiring	**1**	**2**	**3**	**4**	**5**	**Motivating**

4) The assessment was done to try and make sure you are ready and able to train at Access College. Do you feel that it gave a fair result? (Please show your answer by putting a cross in the right box). Yes ☐ No ☐

Please explain your answer: _____

_____

_____

5) How do you think the assessment test should be changed?
Why do you think these changes are needed?

_____

_____

_____

_____

_____

_____

_____

6) Do you have any other comments about the assessment battery?

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR HELP.

Appendix 8

SELF ADMINISTERED QUESTIONNAIRE COMPLETED BY POTENTIAL COLLEGE STUDENTS

RESEARCH ON THE ACCESS COLLEGE ASSESSMENT BATTERY

Dear Student

Recently you went through an Assessment Day at Access College. Please could you give us your opinions of the assessment battery that was used? This short questionnaire is part of my research for a Master's degree in Educational Psychology.

Thank you.

Glynda Blomson

DATE : _____

NAME : _____

HOME LANGUAGE : _____

Appendix 7

LETTER TO WORKSHOP PARTICIPANTS

Dear

RE: WORKSHOP TO CRITIQUE AND DETERMINE UNDERLYING SKILLS/ATTRIBUTES TAPPED IN ACCESS COLLEGE ASSESSMENT BATTERY

Thank you so much for agreeing to participate in the abovementioned workshop, your input will be greatly appreciated.

As promised, I have included a copy of the existing assessment battery so you have an opportunity to familiarise yourself with it before the workshop.

My research is being conducted at Access College - a multi-disability commercial college in Randburg. The assessment battery included is the one presently used to determine which students will cope with vocational training and which of four different courses they will best cope with. One research aim is to determine what underlying skills/attributes are tapped by the sub-tests in the existing battery. Your assistance in determining the underlying skills/attributes as well as your input on your perceptions of the battery will be appreciated.

The confirmed date for our workshop is 10 May 1994:

Venue: University of the Witwatersrand
Education Building Room
Room 39A (Ms Mentis' office).

If there are any queries please feel free to contact me at (H) or (W).

Your participation is greatly appreciated.

Yours faithfully

Mrs G BLOMSON
EDUCATIONAL PSYCHOLOGY INTERN

Junior	Secretary						
	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7
Rater 1	1						
Rater 2	-0.06361	1					
Rater 3	0.244804	0.238081	1				
Rater 4	0.069096	0.290095	0.07807	1			
Rater 5	0.118745	0.407896	0.157842	-0.139	1		
Rater 6	1.4E-16	0.281466	0.109275	0.102062	0.137812	1	
Rater 7	0.342416	0.010597	0.120248	0.046041	0.010084	0.209441	1

	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7
Rater 2	1					
Rater 3	0.238081	1				
Rater 4	0.290095	0.07807	1			
Rater 5	0.407896	0.157842	-0.139	1		
Rater 6	0.281466	0.109275	0.102062	0.137812	1	
Rater 7	0.010597	0.120248	0.046041	0.010084	0.209441	1

Business	Administr							
Rater 1	1							
Rater 2	0.074398	1						
Rater 3	0.073598	0.130571	1					
Rater 4	0.283896	-0.14668	-0.03214	1				
Rater 5	0.054797	-0.0308	0.153044	0.03457	1			
Rater 6	-0.10206	0.288542	0.069338	0.193167	-0.05965	1		
Rater 7	0.06582	0.030034	0.271276	0.132878	0.159657	0.279457	1	
Rater 8	0.088419	-0.03531	0.401513	0.233403	0.099281	0.273576	0.223477	1

	Rater 1	Rater 3	Rater 4	Rater 5	Rater 7	Rater 8
Rater 1	1					
Rater 3	0.073598	1				
Rater 4	0.283896	-0.03214	1			
Rater 5	0.054797	0.153044	0.03457	1		
Rater 7	0.06582	0.271276	0.132878	0.159657	1	
Rater 8	0.088419	0.401513	0.233403	0.099281	0.223477	1

APPENDIX 6

RESULTS OF INTER-RATER CORRELATIONS

Computer Operator

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7	Rater 8
Rater 1	1							
Rater 2	-0.1096	1						
Rater 3	0.252241	0.377462	1					
Rater 4	0.243713	0.088892	0.111166	1				
Rater 5	0.206765	0.057012	0.300792	0.300014	1			
Rater 6	0.281395	-0.01325	0.327032	0.132126	0.153597	1		
Rater 7	0.152708	0.439679	0.423516	0.174342	0.042716	0.331411	1	
Rater 8	-0.02759	0.351554	0.268483	0.290208	0.162707	0.081824	0.229092	1

	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7	Rater 8
Rater 2	1						
Rater 3	0.377462	1					
Rater 4	0.088892	0.111166	1				
Rater 5	0.057012	0.300792	0.300014	1			
Rater 6	-0.01325	0.327032	0.132126	0.153597	1		
Rater 7	0.439679	0.423516	0.174342	0.042716	0.331411	1	
Rater 8	0.351554	0.268483	0.290208	0.162707	0.081824	0.229092	1

P.E.P.

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7	Rater 8
Rater 1	1							
Rater 2	-0.19528	1						
Rater 3	0.152821	0.142795	1					
Rater 4	-0.09405	0.127109	-0.04075	1				
Rater 5	0.194633	0.127305	0.336505	0.102941	1			
Rater 6	0.299819	-0.05872	0.485453	0.172579	0.444812	1		
Rater 7	0.248023	0.107599	0.140645	0.0437	0.334367	0.126622	1	
Rater 8	-0.30478	0.059496	0.159094	0.077841	-0.24843	-0.08364	-0.18897	1

	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7
Rater 2	1					
Rater 3	0.142795	1				
Rater 4	0.127109	-0.04075	1			
Rater 5	0.127305	0.336505	0.102941	1		
Rater 6	-0.05872	0.485453	0.172579	0.444812	1	
Rater 7	0.107599	0.140645	0.0437	0.334367	0.126622	1

APPENDIX 5

RESULTS OF LECTURERS' LIKERT-TYPE SCALE RATING OF NECESSARY SKILLS/ATTRIBUTES

Junior Skill	Secretary Mean	Business Skill	Administr Mean	Computer Skill	Operator Mean	P.E.P. Skill	Scores Mean	All Skill	Which Crse
S234567	M234567	S134678	M134678	S2345678	M2345678	S3567	M3567	1	B
47	4.67	27	4.83	7	5.00	45	4.5	2	BC
48	4.67	3	4.83	27	4.86	4	4.5	3	SBCP
27	4.67	40	4.67	6	4.86	7	4.5	4	SBP
20	4.50	7	4.67	13	4.71	27	4.5	5	P
30	4.50	10	4.67	8	4.71	30	4.5	6	C
50	4.50	20	4.67	10	4.71	47	4.5	7	SBCP
7	4.50	31	4.67	9	4.57	39	4.25	8	C
3	4.50	54	4.67	52	4.43	3	4.25	9	C
4	4.50	4	4.50	2	4.43	19	4.25	10	BC
43	4.33	15	4.50	3	4.43	50	4.25	12	C
22	4.33	30	4.50	12	4.43	20	4.25	13	BC
31	4.33	52	4.50	19	4.43	5	4.25	14	B
42	4.17	2	4.50	30	4.43	2	4	15	B
16	4.17	13	4.50	31	4.43	8	4	19	CP
23	4.17	14	4.50	48	4.43	12	4	20	SBP
29	4.17	33	4.50	40	4.29	31	4	22	S
39	4.17	48	4.50	54	4.29	29	4	27	SBCP
36	4.00	1	4.50	55	4.29	44	4	30	SBCP
5	4.00	21	4.33	15	4.29	15	4	31	SBC
21	4.00	32	4.33	38	4.29	35	4	33	B
51	4.00	47	4.33	42	4.29	1	3.75	39	P
15	4.00	53	4.33	53	4.29	32	3.75	40	B
35	4.00	6	4.33	24	4.14	46	3.75	43	S
49	4.00	8	4.33	49	4.14	37	3.75	45	P
8	4.00	5	4.33	4	4.14	22	3.75	47	SP
32	4.00	11	4.33	41	4.14	42	3.75	48	SBC
41	4.00	35	4.33	47	4.14	14	3.75	50	SP
45	4.00	36	4.33	50	4.14	23	3.75	52	BC
12	4.00	19	4.33	16	4.14	41	3.75	54	B
19	4.00	34	4.17	34	4.14	43	3.75		
52	3.83	42	4.17	22	4.00	28	3.75		
25	3.83	39	4.17	25	4.00	48	3.75		
38	3.83	12	4.17	28	4.00	51	3.75		
40	3.83	16	4.17	35	4.00	40	3.5		
44	3.83	17	4.17	1	4.00	53	3.5		
46	3.83	23	4.17	14	4.00	16	3.5		
53	3.83	38	4.17	20	4.00	21	3.5		
1	3.83	50	4.17	21	4.00	36	3.5		
9	3.83	22	4.17	32	4.00	9	3.5		
2	3.83	29	4.00	33	4.00	49	3.5		
37	3.67	49	4.00	44	4.00	25	3.5		
18	3.67	9	4.00	11	3.86	13	3.25		
34	3.67	25	4.00	39	3.86	38	3.25		
6	3.67	44	4.00	23	3.71	52	3.25		
17	3.67	55	4.00	5	3.71	17	3.25		
33	3.67	18	3.83	37	3.71	33	3.25		
13	3.67	37	3.83	51	3.71	34	3.25		
26	3.50	41	3.83	29	3.71	18	3.25		
14	3.50	24	3.83	43	3.57	6	3		
11	3.50	45	3.83	17	3.43	54	3		
28	3.33	46	3.83	38	3.43	24	3		
24	3.33	26	3.67	45	3.43	26	3		
55	3.17	43	3.67	18	3.43	55	3		
54	3.17	51	3.33	46	3.43	11	3		
10	3.17	28	3.00	28	3.29	10	2.75		

1 = strongly disagree 2 = disagree 3 = neutral		4 = agree 5 = strongly agree	Bus Ad	Comp Op	Jun Sec	PEP
58						
59						
60						
61						
62						
63						

THANK YOU FOR YOUR CO-OPERATION

1 = strongly disagree 2 = disagree 3 = neutral		4 = agree 5 = strongly agree	Bus Ad	Comp Op	Jun Sec	PEP
31	Concentration					
32	Self-esteem					
33	Auditory sequencing					
34	Associate ability (ability to transfer knowledge)					
35	Visual sequencing					
36	Frustration tolerance					
37	Self-confidence					
38	Assertiveness					
39	Positive attitude to College					
40	Awareness of importance of self-testing and reviewing					
41	Test taking and test preparation strategies					
42	Stress tolerance					
43	Eye and hand co-ordination					
44	Ability to use study aids eg. summaries, special markings					
45	Co-operation with fellow students					
46	Relationship building skills					
47	Ability to follow English verbal instructions					
48	Ability to follow English written instructions					
49	Ability to follow graphic instructions					
50	Ability to learn from demonstration					
51	Fine motor co-ordination					
52	Independent learning (ability to work alone)					
53	Organised work					
54	Numerical reasoning					
55	Knowledge of computational facts					
56	Other skills:					
57						

Author: Blomsom G
Name of thesis: Evaluating an assessment battery for a multi-dissability commercial college

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