THE APPLICABILITY OF THE MOTIVATED STRATEGIES FOR
LEARNING QUESTIONNAIRE (MSLQ) FOR SOUTH AFRICA

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SUMMARY

Admissions assessment batteries at most South African higher education institutions augment matriculation results with assessment data from cognitive and non-cognitive measures, in order to identify potentially successful students. The Motivated Strategies for Learning Questionnaire (MSLQ) is a non-cognitive measure, developed in the United States of America to assess the motivational orientation and use of learning strategies among college students. Numerous international studies have confirmed the reliability and validity of the MSLQ.

Presently only three quantitative studies have been conducted in the South African higher education context, and in these, researchers have focused on the predictive validity, construct validity and reliability of the MSLQ when used with multicultural and multilingual groups of test-takers. An overview of these studies revealed a confirmation of adequate reliability of the MSLQ, and whereas it was established that nine of the fifteen subscales of the MSLQ are significantly related to the academic success of undergraduate students, limited support was found for the construct validity of the measure. As a result of these findings, a lack of qualitative methods for confirming or disconfirming the quantitative results was noted.

The general aim of this study was to explore the applicability of the MSLQ in a higher education South African context, with respect to aspects related to bias, through assessing the item content with specific reference to language and cultural appropriateness. This was to ensure that items on the MSLQ did not favour or disadvantage any cultural and language groups. Investigations in this regard are a necessity in a country like South Africa in an effort to promote fair assessment practices.

In order to achieve the above-mentioned aim, a quantitative and qualitative approach was utilised following an exploratory-descriptive research method. The researcher employed a non-probability, purposive sampling procedure to select post-graduate participants employed at the Nelson Mandela Metropolitan University (NMMU) to act as
expert reviewers. A Bias Review Form was the primary mode of data collection and this enabled the researcher to collect the biographical details of the expert reviewers, their ratings of the language and cultural appropriateness of each item, and their comments, suggestions and recommendations for improving identified problematic items. Descriptive statistics were used to analyse the reviewers’ responses to the short biographical questionnaire included on the Bias Review Form, while frequency counts were calculated based on the reviewers’ responses to the language and cultural appropriateness of each item.

The reviewers’ comments were analyzed into themes using Tesch’s model of content analysis. Three main themes relating to potential bias were identified, namely, language, culture and item characteristics. Guba’s model was employed for assessing the trustworthiness of the qualitative data and for data verification.

The major findings of the present study were as follows:

1. Of the 81 items that make up the MSLQ, only seventeen items were identified as both language and culturally appropriate. With only 22 of the 81 items being rated by all the reviewers as being language appropriate, and 46 of the 81 as culturally appropriate, there is a need to explore the adaptation of the remaining items in order to eliminate potential bias.

2. More specifically, the expert reviewers expressed concern that the unfamiliar terms found in the majority of the MSLQ scales’ items would be potentially biased against test-takers assessed in their second or third language, and black test-takers with limited access to quality educational opportunities.

3. In addition, there was concern about item vagueness, poor grammar, punctuation and sentence structure, and a lack of consistency with regard to unfamiliar terms used. The reviewers considered such issues to have potentially compromised the language appropriateness of the items in this non-cognitive measure.
4. Item characteristics such as loaded terms, long items, item content which covered more than one idea, and items with repetitive themes, were also perceived as possible elements of potential bias.

5. The reviewers expressed approval of items which they found to be cross-culturally relevant, interesting, appropriate, and representative of the constructs being assessed. The importance of using equally familiar terms across cultures and language groups, in order to ensure that all students would be equally familiar with the item content and can thus benefit from the assessment, was strongly emphasised.

6. Reviewers agreed that the 81 items of the MSLQ were not offensive to any cultural and language groups and to the intended test-takers.

7. The potential benefits of the MSLQ from the academic and the student perspective were also recognized.

As this study formed part of a broader research project on the MSLQ, the qualitative findings were valuable in making recommendations to the project team regarding the applicability of the MSLQ in the South African context. These recommendations generally encompassed using equally familiar terminology across languages, cultures and differing educational backgrounds, rewording, quantifying terms, and simplifying the content and language of specific items.

Key words: motivation, learning strategies, higher education, MSLQ, item bias, language appropriateness, cultural appropriateness, expert reviewers.
CHAPTER ONE
INTRODUCTION

Introductory Remarks

Presently an increasing body of literature supports the fact that the majority of South African higher education institutions augment matriculation results with results from admissions batteries. Such batteries, which are composed of cognitive and non-cognitive measures, are an attempt to broaden access for disadvantaged students, identify those students who will succeed academically, and ensure that students’ developmental needs are addressed so as to increase academic success and throughput rates (Admissions and Placement Assessment Programme (APAP), 2001; Seymour, 2002; Van der Walt, 2000; Watson, Van Lingen, & De Jager, 1997). This is in line with international trends in the higher education context. More specifically, these admissions and placement measures assist with making admission decisions when the emphasis is on differentiating between potentially successful and unsuccessful students (APAP, 2001).

The general aim of the present study was to explore the applicability of one such non-cognitive measure, the Motivated Strategies for Learning Questionnaire (MSLQ), in a South African higher education context, specifically with regard to potential language and cultural item bias. The MSLQ is a non-cognitive measure, developed in 1986 by Pintrich, Smith, Garcia and McKeachie in the United States of America in order to assess the motivational orientation and use of learning strategies among college students (Pintrich, Smith, Garcia, & McKeachie, 1991). Notably this was one of the first measures in educational psychology to be based on the integration of motivational and information processing theories of learning (McClendon, 1996).

International research has generally found that the MSLQ is a reliable and valid non-cognitive measure when used to assess students’ motivational orientation and their use of learning strategies (Barker & Olsen, 1995; Garcia & Pintrich, 1995; Pintrich
Recognition of the MSLQ as an educational, developmental and admissions and selection aid has multiplied since its inception.

The present study forms part of a broader study on the MSLQ undertaken by the Centre for Access Assessment and Research (CAAR) at the Nelson Mandela Metropolitan University (NMMU). The Admissions and Placement Assessment Programme (APAP), now known as CAAR, included the MSLQ in their admissions assessment battery from 2003 to 2005, but based on research undertaken by McSorley (2004), it was concluded that further research was needed before it could be added to their admissions battery on a more permanent basis.

Previous national studies conducted using the MSLQ adopted quantitative methods of data collection and analysis and these are elaborated on in Chapter Two. Qualitative methods were used in this study to analyse the responses to a Bias Review Form completed by a heterogeneous sample of expert reviewers from the NMMU whose role was to give an indication, based on their knowledge, experience and expertise, as to whether the 81 items of the MSLQ were linguistically appropriate and culturally relevant for a multicultural South African sample. This was a preliminary investigation to generate data in order to assist in the adaptation process of the MSLQ and to lay the foundation for future research.

The value of investigating the psychometric properties of the MSLQ is an imperative step in the test adaptation process and is in line with the guidelines provided by the International Test Commission (1999) and the Health Professions Council of South Africa (2000). This is especially important in a country such as South Africa where notably fewer studies of bias have been conducted whilst numerous psychological assessment measures have been imported from European and Westernised cultures without any prior psychometric investigations (Astin, 2005; Foxcroft & Roodt, 2001; Plug, 1996; Riordan, 2002). In addition, literature reviewed from national research studies emphasises that South Africa is a country where attempts need to be made to rectify past assessment practices that have had a discriminatory effect on certain sectors of the population (Snelgar & Potgieter, 2003).
Recommendations from the findings of this study thus aim to provide support for whether the MSLQ should be adapted to remove any language or cultural item bias. The next section overviews successive chapters.

Outline of Chapters

Chapters Two and Three provide the literature review and the general background to the present study. As the focus of this study is on the MSLQ, Chapter Two covers the theoretical foundation and the development of this non-cognitive measure. The psychometric properties and the educational applicability of the MSLQ, as recognised internationally, are also discussed in Chapter Two. The remainder of the chapter focuses on international and national research conducted, using the MSLQ with undergraduate higher education students.

Given that the MSLQ was originally developed for an American population, the importance of extensively investigating the psychometric properties of measures developed in other countries, when used with different target populations, in order to eliminate bias and to ensure culture-fair assessment practices, will be discussed in Chapter Three. The process of test adaptation, specific advantages of adapting already existing measures, as well as standardised international guidelines and ethical issues related to test adaptation, are also discussed in this chapter. Specific attention is paid to the three types of bias that could arise when translating or adapting measures in cross-cultural studies, namely, construct bias, method bias, and item bias, with particular attention being directed to item bias. The challenges related to the influence of bias, as described by international and national studies, and methods of investigating and reducing bias are reviewed. The value of cross-culturally relevant psychometric measures for enhancing ethical psychological assessment in South Africa is noted in the remainder of this chapter.

Chapter Four presents the description of the methodological approach used to achieve the aim of this study and provides pertinent information regarding the selection of participants and the description of their biographical details such as age, gender, language, ethnicity and educational level. Methods of data collection, ethical considerations and modes of data analysis are presented and discussed in this chapter.
Given that the qualitative analysis was based on Tesch’s (1990) model of content analysis, the remainder of the chapter focuses on Guba’s (1981) model which assesses the trustworthiness of qualitative data.

Both the qualitative findings and quantitative results of this study are presented and discussed in Chapter Five, in accordance with the identified themes and sub-themes. In conclusion, Chapter Six pays attention to the identified limitations of this study and outlines recommendations for future research in this field.
CHAPTER TWO
THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE
(MSLQ)

Introduction

A large body of research, both international and national, accentuates the importance of non-cognitive variables as predictors of academic success at higher education institutions (Applebome, 1995; Astin, 1975; Claasen, 1995; Foxcroft & Roodt, 2001; Gelso & Rowell, 1967; Pascarella & Chapman, 1983; Riordan, 2002; Sedlacek & Webster, 1989; Tracey & Sedlacek, 1987; Van der Walt, 2000). Similarly, several researchers have emphasised that it is imperative that the role of non-cognitive variables in higher education academic achievement, and the measures used to assess such variables, be grounded in theory (McSorley, 2004; Wallis, 2004). Chapter Two aims to overview the theoretical foundation of the Motivated Strategies for Learning Questionnaire (MSLQ), together with the history of its development and a breakdown of the constructs assessed by this non-cognitive measure. Pertinent information regarding the psychometric properties and the applicability of this measure will also be highlighted. In concluding the chapter, attention will be focused on international and South African research on the MSLQ with undergraduate higher education students.

Social Cognitive Theory

As the MSLQ is a measure that is largely based on a general social cognitive view of motivation and learning strategies (Pintrich, 1988a, 1988b, 1989; Weinstein & Mayer, 1986), this section will overview the theoretical foundation of Social Cognitive Theory.

From Social Learning Theory (SLT), Albert Bandura (1986) developed the Social Cognitive Theory (SCT) which crystallised into a theoretical foundation for the study of students’ behaviour and attitudes. In accordance with Bandura’s theory, human functioning is more accurately described as a triadic, dynamic and reciprocal
interaction of environmental factors, cognitions, and behaviour (Bandura, 1977a, 1986, 1989). Jones (1989) reported that Bandura's work demonstrated support in favor of cognitive theorists who regard the human mind as an active force that constructs its own reality, selectively encodes information, performs behaviour on the basis of values and expectations, and imposes structure on its own actions.

Specifically, from a SCT perspective, humans are characterised in terms of five basic and unique capabilities, namely: symbolising, vicarious learning, forethought, self-regulation and self-reflection, all of which provide them with the cognitive means by which to determine behaviour (Bandura, 1977b, 1986, 1989). Bandura's work (1986, 1997) includes goals, expectations and self-efficacy as significant elements of the learning mechanism and of self-motivation determinants. Bandura (1986) further clarified that outcome expectations are largely dependent on efficacy judgements. In addition, SCT also proposes the essential role of self-efficacy (Bandura, 1991; Schunk & Ertmer, 1998; Zimmerman, 1989). Bandura’s theory of self-efficacy will be further highlighted in a later section of this chapter. From the literature reviewed it is evident that this theory does not only focus on the behavioural skills in managing one's environment, but also on the knowledge and sense of self-efficacy to employ such skills in relevant contexts (Lynch & Dembo, 2004). The student is represented as an active processor of information, whose beliefs and cognitions are important mediators of instructional input and task characteristics (Pintrich, 1989; Kivinen, 2002; Weinstein & Mayer, 1986). Thus, within the social cognitive perspective learning is conceived as an active, cognitive, constructive, significant, mediated and self-regulated process (Beltran, 1996).

In accordance with SCT, motivation is defined in terms of: a) self-efficacy beliefs of students about their abilities to engage persistently in a task and accomplish specific tasks (Bandura, 1986, 1991; Stipek, 1988); b) goal-setting activities (Dweck & Leggett, 1988); and c) learning strategies, and cognitive and metacognitive processes (Pajares & Kranzler, 1995; Schunk, 1995). From the social cognitive perspective thus, motivation and cognition are repeatedly regarded as interconnected (Garcia & Pintrich, 1995; Pintrich, 1989; Pintrich & De Groot, 1990; Pintrich, Roeser, & De Groot, 1994), and currently SCT predominates in the field of learning and cognition as it considers both these as components of academic performance (Garcia
Various measures have been developed across disciplines, based on the rationale and principles of SCT.

The social cognitive perspective is thus distinctive in viewing self-regulation as an interaction of personal, behavioural and environmental triadic processes (Bandura, 1986; Zimmerman, 2000). More specifically, the educational application of Bandura's SCT manifests itself in a concept known as self-regulated learning (Barker & Olsen, 2002; Zimmerman, 2000, 2001, 2002). Such learning refers to the degree that individuals are metacognitively, motivationally and behaviourally active participants in their own learning process (Schunk & Zimmerman, 1994). Theories of self-regulated learning emphasise that such learning is not a mental ability, such as intelligence, or an academic skill, such as reading proficiency, but rather that it is the self-directive process through which students transform their mental abilities into academic skill (Schunk & Zimmerman, 1997).

Within the framework of SCT, in order to be classified as self-regulated, a student must use specific strategies to achieve academic goals on the basis of self-perception (Schunk & Zimmerman, 1994). Such strategies include goal-setting, planning, organising and transforming, rehearsing and memorising, record-keeping and self-monitoring (Schunk & Zimmerman, 1994). A review of the literature supports the finding that the use of self-regulating learning strategies allows students to process information actively, thereby influencing their mastery of material and subsequent academic achievement (Pintrich, Smith, Garcia, & McKeachie, 1993). Pintrich and De Groot (1990) have emphasised that self-regulated students not only possess cognition (knowledge to build upon) and metacognition (the knowledge and monitoring of learning strategies), but are also motivated to use their metacognitive strategies to build upon their understanding of instructional material.

Bandura’s work has stimulated an enormous amount of research in various disciplines and has been fruitful in developing techniques for promoting behaviour change (Stone, 1998). SCT has been found to be applicable in diverse cultures from Western to Eastern Europe, and it is viewed by some researchers as being applicable in a multicultural South African context as it considers the socio-cultural context in which learning takes place (McSorley, 2004).
When compared with the Learning and Study Strategies Inventory (LASSI; Weinstein, Zimmerman, & Palmer, 1988), another widely used non-cognitive measure, Garcia and Pintrich (1995) emphasised that the MSLQ takes a more comprehensive view of the motivational processes involved in self-regulated learning and it contextualises motivation and learning strategies by assessing them at the course level. The development of the MSLQ is covered in the next section.

The Development of the MSLQ

Since the late 1960’s researchers have conducted numerous studies on the motivation and learning approaches of higher education students as predictors of academic success (Pickering, Calliotte, & McAuliffe, 1992). Several measures and inventories have been developed to measure learning approaches and other non-cognitive variables related to higher education academic achievement. Some examples of such measures and inventories are: the Non-Cognitive Questionnaire (NCQ; Sedlacek, 1986); the Learning and Study Strategies Inventory (LASSI; Weinstein et al., 1988); the Approaches to Study Inventory (ASI; Entwistle & Ramsden, 1983); the Survey of Study Habits and Attitudes (SSHA; Brown & Holtzman, 1967); the Study Process Questionnaire (SPQ; Biggs, 1987) and the Self-Regulated Learning Interview Schedule (SRLIS; Zimmerman & Martinez-Pons, 1986). In the 1980’s the proliferation of studies in the motivational field, such as studies on self-concept, self-efficacy beliefs and attribution, and mastery goals, provided a significant boost for heightened interest in studying how non-cognitive variables were linked to academic success and persistence (Eccles, 2002). Research by Pintrich and his colleagues (1986, 1989, 1991) was among the first of several studies to show that strategies such as elaboration skill and active reading, led to increased scores on tests of students’ learning strategies and in their course grades (Barker & Olsen, 2002). Subsequently, in 1986, Pintrich, Smith, Garcia and McKeachie developed the Motivated Strategies for Learning Questionnaire (MSLQ) at the National Centre for the Improvement of Post-Secondary Teaching and Learning (NCRIPTAL) at the University of Michigan (McClendon, 1996; Pintrich et al., 1991).
The MSLQ was developed over a three-year period, during which time it was validated through factor analyses and reliability analyses and correlated with measures of achievement (Pintrich et al., 1991, 1993; Wine & Perry, 2000). This non-cognitive measure, which was one of the first measures to be based on the integration of motivation and information processing theories of learning (McClelland, 1996), was designed to assess the motivational orientation and learning strategy use of college students (Garcia & Pintrich, 1995; Pintrich et al., 1991). The final version of the MSLQ reflects 12 years of work on various phases of data collection, mainly at the University of Michigan (Pintrich et al., 1991, 1993). The measure, designed to be administered in class, takes approximately 20 to 30 minutes to complete (Garcia & Pintrich, 1995; Kivinen, 2002; Van Zile-Tamsen, & Livingston, 1999). One of its advantages is that it has been applied and validated at both higher and secondary educational levels (Montalvo & Torres, 2004).

By focusing on the roles of both motivation and cognition in the classroom, the MSLQ also addresses advances in self-regulated learning which emphasise the interface between motivation and cognition (Schunk & Zimmerman, 1994). Several studies have subsequently highlighted the significant role of motivated strategies for learning as important aspects of students’ academic performance in the classroom, especially for college students (Leung & Chan, 2002). The next section provides detailed information about this non-cognitive measure.

**The MSLQ Sections and Scales**

The MSLQ is an 81-item, self-report Likert-type questionnaire in which students rate statements about their motivational orientation and use of different learning strategies for a specific course from “1” (not at all true of me) to “7” (very true of me) (Pintrich et al., 1991; Van Zile-Tamsen & Livingston, 1999). The MSLQ, which is scored ipsatively, consists of fifteen different summative scales divided into two main sections, namely, a Motivation Section and a Learning Strategy Section. The two sections that comprise the MSLQ are presented in Table 1 and the items per scale are presented in Appendix D.
### Table 1

**MSLQ Sections and Scales**

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<th>LEARNING STRATEGY SECTION</th>
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<td><strong>Value Component</strong></td>
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<td><strong>Expectancy Component</strong></td>
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<td><strong>Affective Component</strong></td>
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This non-cognitive measure is classified as a paper and pencil test (Garcia & Pintrich, 1995). Each of the 15 scales has between three and thirteen items, altogether forming a total of eighty-one items (Pintrich et al., 1991). Scales are individually designed and have frequently been used independently of the larger measure (Garcia & Pintrich, 1995; Van Zile-Tamsen & Livingston, 1999). There are some negatively worded items and these ratings should be reversed before an individual score is computed so that the statistics reported represent the positive wording of all items and so that higher scores indicate higher levels of the construct of interest (Garcia & Pintrich, 1995). The MSLQ is not norm referenced (Pintrich, 2002). Scale scores are arrived at by computing the mean score for the items that make up that scale (Pintrich et al., 1991).

**The Motivation Section of the MSLQ**

The Motivation Section consists of scales that represent the motivational beliefs that students have about themselves, learning as a whole and specific learning tasks (Garcia & Pintrich 1995; Pintrich et al., 1991; Van Zile-Tamsen & Livingston, 1999).
This section consists of 31 items that assess students’ goals, their value beliefs for a course, their belief about their ability to succeed in a course, and their anxiety about tests on a course (Garcia & Pintrich 1995; Kivinen, 2002).

The six scales of the Motivation Section are based on a general social cognitive model of motivation, which proposes three general motivation constructs that can be measured and monitored, namely, expectancy, value and affect (Pintrich, 1988a, 1989). The expectancy component refers to students’ beliefs that they can accomplish a task (Garcia & Pintrich, 1995). The two MSLQ scales that make up the expectancy component are the Control of Learning Beliefs scale and the Self-Efficacy for Learning and Performance scale. Attributes that make up the value component cover a student’s Intrinsic Goal Orientation, Extrinsic Goal Orientation and Task Value. While the value component focuses on the reasons why students engage in an academic task, the affectional construct has been operationalised in terms of responses to the Test Anxiety scale, which taps into students’ concern over taking examinations (Garcia & Pintrich, 1995; Kivinen, 2002). The next section provides background information regarding the Motivation scales under the Value Component of the MSLQ.

**Goal Orientation**

Goal orientation refers to the type of goals students set before they engage in a task (Miltidou, 1999). Goal theory is important to educational research in that sustaining goal-directed cognition and behaviour contributes to self-regulated learning (Lent, Hackett, & Brown, 1994). There are four main reasons why goal-setting improves performance: a) it directs a student’s attention to the particular task; b) it engages effort; c) it increases persistence; and d) it promotes the development of new strategies when old strategies fail (Locke & Latham, 1990).

Learning goals have also been called mastery goals (Ames & Archer, 1998), while performance goals have been called ego incentive goals (Maehr & Braskamp, 1986). Various researchers have found that a mastery goal, defined as the desire to gain understanding of a topic, correlates with: effective learning strategies; positive attitudes towards higher education academic studies; the choice of difficult tasks as
opposed to simple ones; perceived ability; effort and concern about future consequences; self-regulation; the use of deep cognitive processes; persistence; initiative; and achievement (Archer, 1994; Garcia & Pintrich, 1996; Miller, Greene, Moltalvo, Ravindran, & Nichols, 1996). These learning and performance goal orientations can be equated to the Intrinsic and Extrinsic Goal Orientation scales of the MSLQ presented below.

The Intrinsic Goal Orientation Scale

On the MSLQ, goal orientation refers to a student’s general goals or orientation to the course as a whole. Intrinsic Goal Orientation indicates the degree to which students perceive themselves to be participating in a task for reasons such as challenge, curiosity and mastery (Garcia & Pintrich, 1995; Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990; Pintrich et al., 1991). The Intrinsic Goal Orientation scale consists of four items, an example of which is: “In a course, I prefer course material that really challenges me so I can learn new things”. The next section focuses on the Extrinsic Goal Orientation scale.

The Extrinsic Goal Orientation Scale

Extrinsic Goal Orientation is the parallel of performance goals and the opposite of learning goals or Intrinsic Goal Orientation. With reference to the MSLQ, Pintrich and his colleagues (1991) describe extrinsic goal orientation as the degree to which students perceive themselves to be participating in a task for reasons such as grades, rewards, performance, evaluation by others and competition. An example of one of the four items in this scale is: “If I can, I want to get better marks in my course than most of the other students”. Schraw, Horn, Thorndike-Christ and Bruning (1995) distinguished that extrinsically goal-orientated students proved their competence while intrinsically goal-oriented students improved their competence.

The Task Value Scale

Task Value is the third scale that makes up the value component of the Motivation Section. Task value forms one of the core components of self-regulation (Miltiadou,
The Task Value scale addresses the student’s perception of the course material in terms of interest, importance and the utility of a course (Garcia & Pintrich, 1995; Pintrich et al., 1991). Six items cover the Task Value scale, examples of which are: “I think I will be able to use what I learnt in one course in other courses” and “Understanding the subject matter of my course is very important to me”. On the MSLQ, high task value scores have been found to correlate with increased involvement in learning (Kivinen, 2002), and they have been shown to predict academic achievement (Garcia & Pintrich, 1995; Hofer & Yu, 2003). The next section covers the two motivational scales under the expectancy component.

**The Control of Learning Beliefs Scale**

The Control of Learning Beliefs scale is a measure of students’ beliefs that they are in control of their own learning and that their learning outcomes are thus contingent upon their own efforts rather than external factors such as the teacher or luck (Pintrich et al., 1991). If students feel that effort will result in accomplishment they will score high on this scale (Garcia & Pintrich, 1995). An example of an item in this scale is: “It is my own fault if I do not learn the material in the course”. Similar to the Goal Orientation scales, this scale consists of four items. In their study, Pintrich and his colleagues (1991) found that control of learning beliefs affected students’ motivation and their engagement in learning tasks.

**The Self-Efficacy for Learning and Performance Scale**

The concept of self-efficacy, introduced by Bandura (1986), has been extensively researched in the field of education and psychology (Andrew, 1998; Bandura, 1997; Chacko & Huba, 1991; Zimmerman, 1989, 2000). Bandura (1986) describes self-efficacy as individuals’ confidence in their ability to control their thoughts, feelings and actions and therefore their ability to influence an outcome. According to SCT, individuals acquire information to assess self-efficacy beliefs from four principal sources, namely, actual experiences, vicarious experiences, verbal persuasion, and physiological indices (Bandura, 1989). Generally, mastery experiences, the result of purposive performance, have been reported to be the most influential source of self-efficacy evaluations (Pajares, 1996).
The eight items on this scale assess two aspects of expectancy: expectancy for success and self-efficacy expectancy. These were collapsed under the general term “self-efficacy” (Garcia & Pintrich, 1995; Pintrich et al., 1991). While expectancy for success refers to performance expectations and relates specifically to task performance (Pintrich et al., 1991), self-efficacy expectancy refers to expectations about one’s confidence to complete a task (Bandura, 1989). Examples of the items in this scale are: “I believe I will receive excellent marks in my course” and “Considering the difficulty of my course, the lecturer and my skills, I think I will do well in my course”. The next section covers the affectional component.

**The Test Anxiety Scale**

Test anxiety has been found to be negatively related to the expectancy components of the MSLQ, as well as academic performance (Pintrich et al., 1993). On the MSLQ, the last motivational scale is Test Anxiety, a scale which specifically taps into a student’s concern over taking examinations (Kivinen, 2002; Pintrich et al., 1991). According to Pintrich and his colleagues (1991), test anxiety has two components, a worry or cognitive component, and an emotional component.

The worry component refers to students’ negative thoughts that disrupt performance, doubts about their ability, and negative beliefs about the consequences of doing poorly on the test (McDonald, 2001; Pintrich et al., 1991). The emotional component refers to the affective and physiological arousal aspects of anxiety, for example, muscle tension, elevated heart rate, sweating, feeling sick and shaking (American Psychiatric Association, 2000; Pintrich et al., 1991). This scale comprises five items, examples of which are: “When I write a test I think about how badly I am doing compared with other students” and “I feel my heart beating fast when I write an exam”.

The next section overviews the composition of the Learning Strategy Section of the MSLQ.
The Learning Strategy Section of the MSLQ

Learning strategies refer to the activities by which learning is achieved (Miltidou, 1999; Sankaran & Bui, 2001). On the MSLQ, the 50-item Learning Strategy Section is based on a general cognitive model of learning and information processing, with study strategies being divided into cognitive and metacognitive categories (Garcia & Pintrich, 1995; Pintrich et al., 1991).

The section measures two general strategies, namely, Cognitive and Metacognitive Strategies, and Resource Management Strategies, with 31 items assessing students’ use of different cognitive and metacognitive strategies, and 19 items assessing their management of different resources (Pintrich et al., 1991).

Payne (1992) defines cognitive strategies as the behaviours and thoughts in which students are engaged while studying, and these include the use of basic and complex strategies for processing information from text and lectures (Garcia & Pintrich, 1995; Kivinen, 2002; Pintrich et al., 1991). There is considerable research indicating the effectiveness of the use of various task strategies for academic learning (Weinstein & Mayer, 1986; Zimmerman & Martines-Pons, 1988). On the MSLQ, the five scales which assess the use of cognitive and metacognitive strategies, namely, Rehearsal, Elaboration, Organization, Critical Thinking, and Metacognitive Self-Regulation are described in the sections that follow.

The Rehearsal Scale

Rehearsal strategies include naming items from a list to be learnt, actively reading assignments according to a plan, listening in lectures and rewriting class notes (Garcia & Pintrich, 1995; Pintrich et al., 1991; Talbot, 1997). These strategies influence the attention and encoding process, and, as such, are best suited for simple tasks and the activation of information in one’s working memory rather than the acquisition of new information in one’s long-term memory (Garcia & Pintrich, 1995; Pintrich et al., 1991). This scale consists of four items, an example of which is: “When I study, I practice saying the material to myself over and over”.
More complex cognitive strategies involving the construction of internal connections between categories of information and the integration of information with prior knowledge are required for the incorporation of information into one’s long-term memory (Pintrich et al., 1991). Such strategies are covered in the next section.

**The Elaboration Scale**

According to Pintrich and his colleagues (1991), elaboration strategies help students store information in long-term memory by building internal connections between terms to be learnt. Such strategies require students to edit notes, compare reading assignments with lecture notes, summarise, paraphrase, and find their own examples from real world events and problems, as well as to use generative note-taking (Pintrich et al., 1991; Talbot, 1997). Developers of the MSLQ further maintain that elaboration strategies help students integrate and connect new information with prior knowledge (Pintrich et al., 1991). Elaboration and organisational strategies are both considered to be deep processing strategies (Garcia & Pintrich, 1995; Weinstein & Mayer, 1986). This scale consists of six items, examples of which are: “When I study for a course, I pull together information from different sources such as lectures, readings and discussion” and “I try to apply ideas from course readings in other class activities such as lectures and discussions”.

**The Organization Scale**

Organizing is described as an active endeavour which results in the student being closely involved in the task (Pintrich et al., 1991; Talbot, 1997). Organizing strategies include clustering, outlining, grouping, selecting the main idea from reading passages, and paying attention to headings, subheadings, diagrams, tables, figures, charts and graphs (Garcia & Pintrich, 1995; Pintrich et al., 1991). These strategies help students select appropriate information and also make connections with the information to be learnt (Pintrich et al., 1991). This scale comprises four items, examples of which are: “When I study the readings for a course, I make an outline of the material to help me organize my thoughts” and “When I study for a course, I go over my class notes and make an outline of important concepts”.

The Critical Thinking Scale

The last cognitive strategies scale of the MSLQ is Critical Thinking, which refers to the degree to which students report applying previously acquired knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence (Pintrich et al., 1991). This scale thus assesses higher order thinking skills (Pintrich et al., 1991), and comprises five items, examples of which are: “Whenever I read or hear an opinion or conclusion in a course, I think about possible alternatives” and “I often find myself questioning things I hear or read in a course to decide if I find them convincing”.

The Metacognitive Self-Regulation Scale

Learning is considered by many theorists and researchers in educational psychology to be a self-regulated process (Kivinen, 2002), a main feature of which is metacognition (Zimmerman, 1989). Metacognition refers to the awareness, knowledge and control of cognition (Garcia & Pintrich, 1995; Pintrich et al., 1991). For the MSLQ, the focus of this scale is on the control and self-regulation aspects of metacognition and not on the knowledge component (Pintrich et al., 1991).

The Metacognitive Self-Regulation Scale consists of 13 items, examples of which are: “When reading for a course, I make up questions to help focus my reading”; “I try to change the way I study in order to fit the course requirements and the lecturer’s teaching style”; and, “If I get confused with taking notes in class, I make sure I sort it out afterwards”. This scale is thus concerned with the use of strategies that help students control and regulate their own cognitions, such as planning, monitoring, and regulating (Garcia & Pintrich, 1995; Pintrich et al., 1991). The following section elaborates on the scales which comprise the Resource Management Strategies component of the MSLQ.

Resource Management Strategies

Besides the self-regulation of cognition and metacognition, students should also be able to employ the following management strategies: a) manage and regulate their
time and study environments; b) monitor effects; c) learn from peers; and d) seek help and support from peers and educators (Pintrich & De Groot, 1990). Other aspects of self-regulated learning include regulating one’s physical and social environment, and the ability to control one’s effort and attention (Pintrich, 1995). The scales of Resource Management Strategies component of the MSLQ are: Time and Study Environment Management, Effort Regulation, Peer Learning, and Help Seeking. Altogether they comprise 19 items. The following sections elaborate on these scales.

The Time and Study Environment Management Scale

The first scale under Resource Management Strategies is Time and Study Environment Management. Time management involves scheduling a time to study, planning weeks or months ahead for assignments, tests and examinations, and effectively using the study time for realistic goal setting, whereas study environment management refers to the physical place where students study (Pintrich et al., 1991). This scale consists of eight items, examples of which are: “I rarely find time to review my notes or readings before an exam”; “I make sure that I keep up with the weekly readings and assignments for a course”; and, “I usually study in a place where I can concentrate on my coursework”.

The Effort Regulation Scale

Effort Regulation is the second scale and comprises four items, examples of which include: “I work hard to do well in a course even if I don’t like what we are doing” and “I often feel so lazy or bored when I study that I quit before I finish what I planned to do”. Pintrich and his colleagues (1991) emphasise that effort regulation is self-management and reflects a commitment to completing tasks and achieving one’s goals despite difficulties and distractions. Effort regulation is important to academic success because it not only signifies goal commitment, but also regulates the continued use of learning strategies (Pintrich et al., 1991).
**The Peer Learning Scale**

Peer Learning refers to the dialogue between and among peers and the intellectual exchange of ideas and information that can help students clarify course material and discover information that they would not be able to do on their own (Garcia & Pintrich, 1995; Pintrich et al., 1991). In addition, observation of peers performing similar tasks also conveys to observers that they too are capable of accomplishing those particular tasks (Pintrich et al., 1991). This scale comprises three items which specifically focus on the use of others in a student’s learning process (Pintrich et al., 1991). Examples of items include: “When I study for a course, I often try to explain the material to a classmate or a friend” and “I try to work with other students from my class to complete the course assignments”. The last section covers Help Seeking, the last scale of Resource Management Strategies.

**The Help Seeking Scale**

The Help Seeking scale taps into the use of others and refers to the process whereby students ask peers and instructors to clarify confusing course material and hence expedite achievement (Pintrich et al., 1991). Help seeking is different from other learning strategies in that it is also social interaction (Pintrich et al., 1991). This scale comprises four items, examples of which are: “I ask the lecturer to clarify concepts I do not understand well” and “I try to identify students in the course whom I can ask for help if necessary”.

Peer Learning and Help Seeking focus on the use of peers and educators in students’ learning (Pintrich et al., 1991) and help students both to adapt to their environment, and also to change their environment to fit their needs (Sternberg, 1985).

The above section provided a discussion of the MSLQ scales. The next section outlines the psychometric properties of this non-cognitive measure.
Psychometric Properties of the MSLQ

In the process of developing any psychological assessment measure, it is required that the psychometric properties be established (Foxcroft & Roodt, 2001). The MSLQ was subjected to standard statistical and psychometric investigations with regards to its construct validity, reliability, and predictive validity. This section will overview pertinent results obtained using higher education student groups.

**Construct Validity**

As part of exploring the validity of the MSLQ, Pintrich and his colleagues (1993) collected 380 responses from Midwestern college students over 14 courses and five disciplines in order to test the utility of the theoretical model of the MSLQ and its operationalization using two confirmatory factor analyses, one for the set of Motivation items and another for the Learning Strategy items. According to Pintrich and his colleagues (1993) a measure’s content validity can be inferred from the close relationship between a scale’s items and a coherent domain of theory. The six scales in the Motivation section and the nine scales in the Learning Strategy section were found to represent a coherent conceptual and empirically validated framework for assessing students’ motivation and use of learning strategies (Pintrich et al., 1993). Numerous research studies have supported the factor structure of the MSLQ and the stability of the fifteen scales (Garcia & Pintrich, 1995; Jacobson, 2000; McClendon, 1996; Pintrich et al., 1993). McClendon (1996), however, cautioned that the sub-factor validity is questionable and it may break down along gender lines.

**Predictive Validity**

Pintrich and his colleagues (1993) used this measure in a study to investigate its predictive validity in terms of higher education academic achievement. The results of the study showed a positive correlation with a measure of academic performance and the students’ final grade for the course in which they were enrolled when they took the MSLQ (Pintrich et al., 1993). More specifically, with the exception of the Extrinsic Goal Orientation scale, the scales in the Motivation section showed significant correlations with final course grades. With the exception of the Rehearsal,
Peer Learning and Help Seeking scales, the scales of the Learning Strategy Section also correlated significantly with final course grades (Pintrich et al., 1993).

In McClendon’s (1996) study of predictive validity, the results of the covariance analysis indicated that Task Value, Control of Learning Beliefs, Self-Efficacy for Learning and Performance, Test Anxiety, Rehearsal, Critical Thinking, Time and Study Environment Management, and Effort Regulation, accounted for the unique variance in predicting grades in an undergraduate course.

Reliability

The developers have published detailed descriptions of each scale as well as relevant statistics such as internal reliability coefficients, means and standard deviations (Kivinen, 2002). Pintrich, Smith, Garcia and McKeachie (1993) were the first to demonstrate the MSLQ as a reliable measure of self-regulated learning. Table 2 provides a comparison of the coefficient alphas from Pintrich et al. (1993) study and the results obtained by Barker and Olsen in 1995.

Table 2
Coefficient Alphas for the 15 MSLQ Scales

<table>
<thead>
<tr>
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<tr>
<td>Intrinsic Goal Orientation</td>
<td>.74</td>
<td>.72</td>
</tr>
<tr>
<td>Extrinsic Goal Orientation</td>
<td>.62</td>
<td>.71</td>
</tr>
<tr>
<td>Task Value</td>
<td>.90</td>
<td>.79</td>
</tr>
<tr>
<td>Control of Learning Beliefs</td>
<td>.68</td>
<td>.48</td>
</tr>
<tr>
<td>Self-Efficacy for Learning and Performance</td>
<td>.93</td>
<td>.92</td>
</tr>
<tr>
<td>Test Anxiety</td>
<td>.80</td>
<td>.70</td>
</tr>
</tbody>
</table>
Table 2 (Continued)

Coefficient Alphas for the 15 MSLQ Scales

<table>
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<tbody>
<tr>
<td>Rehearsal</td>
<td>.69</td>
<td>.66</td>
</tr>
<tr>
<td>Elaboration</td>
<td>.76</td>
<td>.75</td>
</tr>
<tr>
<td>Organization</td>
<td>.64</td>
<td>.70</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>.80</td>
<td>.83</td>
</tr>
<tr>
<td>Metacognitive Self-Regulation</td>
<td>.79</td>
<td>.78</td>
</tr>
<tr>
<td>Time and Study Environment Management</td>
<td>.76</td>
<td>.81</td>
</tr>
<tr>
<td>Effort Regulation</td>
<td>.69</td>
<td>.71</td>
</tr>
<tr>
<td>Peer Learning</td>
<td>.76</td>
<td>.73</td>
</tr>
<tr>
<td>Help Seeking</td>
<td>.52</td>
<td>.65</td>
</tr>
</tbody>
</table>

A commonly used threshold value for acceptable reliability is .70 (Kline, 1986). In their study Pintrich et al. (1993) found the total reliability of the Motivation Scales was .79 while the later study conducted by Barker and Olsen (1995) found it to be .74, thus confirming good internal consistency. The Self-Efficacy for Learning and Performance scale had the highest coefficient alphas in both studies, while the Control of Learning Beliefs scale had a lower coefficient alpha of .48 in Barker and Olsen’s study (1995) as compared to .68 in Pintrich et al. (1993) study.

In their study Pintrich et al. (1993) found the total reliability for the Learning Strategy Scales was .89 while Barker and Olsen (1995) found it to be .88, indicative of good internal consistency. The Critical Thinking scale had the highest coefficient alphas in both studies, while the Help Seeking scale had the lowest coefficient alphas, .52 and .65 respectively. The implication in this regard is that whereas the Help Seeking scale assesses the extent to which students seek help from both peers and instructors, it may be that students tend to seek help from only one of these sources (Pintrich et al., 1993).

The MSLQ has proved valid and reliable in several studies (Barker & Olsen, 1995, 2002; Garcia & Pintrich, 1994, 1995; Garcia et al., 1995; Kivinen, 2002; Pintrich et al., 1993) and is thus, according to Pintrich et al. (1994), a reliable and useful tool that
can be adapted to a number of different purposes for researchers, instructors and students.

The next section highlights the educational applicability of the MSLQ.

**Educational Applicability of the MSLQ**

Internationally the MSLQ has been extensively used in diverse traditional environments and educational disciplines such as educational psychology (Hammann & Stevens, 1998), biology and social sciences (Lin & McKeachie, 1999), accounting (Eide, 1999), dietetics (Silagy-Rebovich, 1996), teacher education (McClendon, 1996) and medical science (Barker & Olsen, 1995). A growing number of studies also support the use of the MSLQ in non-traditional educational environments such as distance learning (Gibson, 1998; Joo, Bong, & Choi, 2000; Lyall & McNamara, 2000; Lynch & Dembo, 2004; Ng, 2002; Sankaran & Bui, 2001; Wang & Newlin, 2002; Zhang, Li, Duan, & Wu, 2001).

Other areas in which the MSLQ was found to be applicable include motivation and performance (Lin & McKeachie, 1999), motivation, learning strategies and achievement (DeKeyrel, Dernovish, Epperly, & McKay, 2000), self-efficacy (Bong, 1998), and self-regulated learning and web-based learning (McManus, 2000). A number of validation studies, which will be discussed in the international and national reviews of the MSLQ, have found several of the scales to be significantly correlated with high academic achievement in undergraduates’ course work (Barker & Olsen, 1995, 2002; McManus, 2000; Miltidou, 1999; Pokay & Blumenfeld-Phyllis, 1990; Watson, McSorley, Foxcroft, & Watson, 2003). Garcia and Pintrich (1995) reported that the MSLQ could be used with students in the upper elementary classes and beyond. Countries such as Arabia (Almegta, 1997), Australia (Fuller, 1999), Canada (d’Apollonia, Galley, & Simpson, 2001), China (Rao, Moely, & Sach, 2000), Japan (Yamauchi, Kumagai, & Kawasaki, 1999), Taiwan (Lee, 1997) and South Africa (Watson, McSorley, Foxcroft, & Watson, 2003; McSorley, 2004) have used the MSLQ in their studies of undergraduate students. In addition, Wolters, Pintrich and Karaberick (2003) reported that the MSLQ has been translated into a number of different languages including French, German, Spanish, Italian, Finnish, Swedish,
Norwegian, Hungarian, Greek, Japanese, Chinese, Hindu and Arabic. From the literature reviewed it is clear that the MSLQ has been comprehensively researched and has received broad acceptance by researchers, academics and others (Pintrich et al., 1991, 1993).

A number of factors, both in the nature of the construction of the questionnaire and in its psychometric properties, have led to it having a wide range of educational applicability. The scales of the MSLQ are modular and were originally designed to be used jointly or independently to fit the needs of researchers or instructors (Garcia & Pintrich, 1995; Pintrich et al., 1991, 1993). The documented stability of the fifteen scales of the MSLQ has thus led numerous researchers to use the scales independently of the larger measure (Van Zile-Tamsen & Livingston, 1999). In addition, the MSLQ can be administered to large groups of students and is a measure that can be scored objectively (Kivinen, 2002; Van Zile-Tamsen & Livingston, 1999). Several studies have commonly acknowledged its validity and it has been confirmed that the information gained from the assessment can be valuable in guiding high-risk higher education students to success (McSorley, 2004).

The MSLQ serves both a substantive and practical concern as it is a measure that has been used for both research and classroom purposes (Pintrich, Brown, & Weinstein, 1994). Donn (1989) emphasised that the MSLQ can also be used to sensitise students to their learning strategies and motivation, and faculties to the learning strategies and motivation of the students in their courses. Academic faculties can thus use the measure to obtain information and feedback on their students, so as to make adjustments in their courses. Students, on the other hand, can use it to measure their planning, monitoring and adaptive strategies and to get advice on how to regulate and adjust these to fit the demands of the situation (Kivinen, 2002; McClendon, 1996; Pintrich et al., 1994). In addition, Greene and Miller (1996) recommend that students analyse their responses and write a self-reflective commentary, including what changes they will make to their learning, based on their feedback from the MSLQ.

In the next section the international research reviews are presented according to the two main sections of the MSLQ.
International Reviews on the MSLQ

Areas researched, and presented in this section, reflect studies undertaken using higher education undergraduate student groups across diverse disciplines.

The Motivation Scales

Several studies of the MSLQ have found intrinsic goal orientation and self-efficacy to be positively related to higher education academic performance (Ames & Archer, 1998; Hagen & Weinstein, 1995; Malpass, O'Neil, & Hocevar, 1999; Pintrich & De Groot, 1990; Schunk, 1995). Pintrich (2000) and Midley and Urdan (2001) found that students who adopted an intrinsic goal orientation achieved high levels of task value, self-efficacy for learning and performance, control of learning beliefs, and effort regulation, as well as behaviours related to seeking academic help especially when faced with difficulties.

Students who scored low on the Intrinsic Goal Orientation scale and high on the Extrinsic Goal Orientation scale were found to be more cognitively engaged than those who scored low in both types of goal orientation (Garcia & Pintrich, 1996), and those who combined high Intrinsic Goal Orientation with medium Extrinsic Goal Orientation performed better than those with either lower or higher levels of Extrinsic Goal Orientation (Lin & McKeachie, 1999).

A number of studies have confirmed that the Task Value scale of the MSLQ is a significant predictor of student academic achievement and course satisfaction (Hammann & Stevens, 1999; Midley & Urdan, 2001; Pintrich, 2000; Townsend & Hicks, 1995; Velayo & McKeachie, 1994) while in two other studies the Self-Efficacy for Learning and Performance scale was found to be the second factor that predicted academic performance above and beyond study strategies in college students (Barker & Olsen, 1995, 2002; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000).

Research on higher education students has also found that students with high scores on the Self-Efficacy for Learning and Performance scale were found more capable of performing challenging academic tasks, working harder and persisting
longer when they encountered difficulties (Bandura, 1993; Pintrich & De Groot, 1990; Pintrich et al., 1994; Schunk, 1984, 1998), and they were more likely to employ adaptive self-regulatory learning strategies, and cognitive and metacognitive strategies, thereby achieving higher academic performance than students who scored lower on the Self-Efficacy for Learning and Performance scale (Garcia & Pintrich, 1995; Linnebrink & Pintrich, 2000; Schunk & Zimmerman, 1994; Zhang, Li, Duan, & Wu, 2001). While Garcia and Pintrich (1996) found that the Intrinsic Goal Orientation and Test Anxiety scales were positively related to course performance for college students, other researchers have found contradictory results showing that, even though the students had reasonable cognitive strategies for encoding and learning, performance on the Test Anxiety scale was inversely related to academic performance: the higher the anxiety, the poorer the performance (Lin & McKeachie, 1999; Pintrich et al., 1994).

Barker and Olsen (2002) found that other elements of self-regulated learning measured by the MSLQ, including student motivation, metacognitive self-regulation, effort regulation, elaboration and self-efficacy, also correlated positively with undergraduate course grades. In their study, Pintrich et al. (2002) found that the higher the control of learning, the greater the student’s motivation for engagement in learning tasks, while Ng (2002) found students with a strong sense of personal control of their own learning beliefs used more adaptive and fewer maladaptive strategies.

McClendon (1996) and Barker and Olsen (1995) found that the motivational factors examined by the MSLQ were the test items that best correlated with student success as measured by Grade Point Average, a finding confirmed by a series of later studies (Dekeyrel, Devonish, Epperly, & McKay, 2000; Mc Manus, 2000).

The next section briefly overviews research findings on the Learning Strategy scales of the MSLQ.

**The Learning Strategy Scales**

In his research Pintrich (1989) found that the use of cognitive strategies such as rehearsal, elaboration, organization and critical thinking were positively related to
academic performance. More specifically, Ruohotie (2002) confirmed that greater use of rehearsal strategies had a positive effect on attention and the process involved in acquiring knowledge.

In another study on the MSLQ, Ruohotie (1996) found that metacognitive strategies helped students to plan, control and regulate their cognitive processes. Kivinen (2002) confirmed that an awareness of metacognitive ability is positively related to high self-efficacy for learning and performance, control of learning beliefs and expectancy of success. Pintrich, Brown and Weinstein (1994), and later Pintrich (2002), found that students who controlled their cognitions and behaviour through planning, monitoring and regulating strategies achieved better academic results when compared to those who did not. This is in line with research findings that the self-regulation of cognitions and behaviour is an important aspect of student learning and academic achievement (Corno, 1986; Linder & Harris, 1992; Pintrich & De Groot, 1990; Schunk, 1986; Zimmerman & Martinez-Pons, 1988; Zimmerman, 1989). With regard to the MSLQ, the Metacognitive Self-Regulation scale has been found to correlate with academic performance (Garcia & Pintrich, 1995; Pintrich & De Groot, 1990).

Ruohotie (1996, 2000) emphasised that resource management strategies help a student to control available resources, time, effort, and outside help in order to cope with the tasks, while Lynch and Dembo (2004) found that students who attained high scores on the Time and Study Environment Management scale achieved better academic results than students who did not. In their respective studies on the MSLQ, Pintrich (1991, 1993, 1995) and Kivinen (2002) highlighted that it was important for students to be able to regulate their time and study environments, and to control their effort and attention, in the face of distractions.

Research has shown that effort regulation is a strong predictor of academic success (Lee, 1997). This conclusion is in line with Pintrich and Smith’s (1993) finding that effort regulation is an important learning strategy as it is seen as the linking connection between motivation and cognition. Research with regard to resource management strategies has found that high-achieving higher education students engaged frequently in help seeking from their teachers and peer tutors (Karabenick &
Pokay and Blumenfeld-Phyllis (1990) found that the Motivation and Learning Strategy Scales of the MSLQ were significantly related to the academic performance of higher education students. From the educational applicability and international research reviews of the MSLQ, it is evident that the scales measure higher order student motivation, cognitive and metacognitive strategies, and the resource management strategies which are important aspects of self-regulated learning, all of which have been proved by the literature reviewed to be the intended outcomes of success in higher education (Pintrich, 1988).

South African reviews of the MSLQ are presented in the next section.

**South African Reviews on the MSLQ**

While internationally the MSLQ has been extensively researched amongst all racial groupings (McSorley, 2004), presently only three quantitative studies have been conducted in the South African context. Two studies which were related to the predictive validity of the MSLQ have been conducted, one by Watson et al. (2003) and the other by Bosch, Boshoff and Louw (2003). A later study conducted by McSorley (2004) focused on the construct validity and reliability of the MSLQ.

**Predictive Validity**

In their study Bosch et al. (2003) found that only one of the six Motivation Scales, Self-Efficacy for Learning and Performance, and one of the nine Learning Strategy Scales, Metacognitive Self-Regulation, correlated to a moderately significant extent with the academic performance of undergraduate Business Management students, Watson et al. (2003) found that nine of the fifteen Motivation and Learning Strategy scales were significantly related to the academic performance of higher education students.
In their study of first-year undergraduate psychology students at the Nelson Mandela Metropolitan University (NMMU), Watson et al. (2003) found students’ mean scores for the Value and Expectancy components to be in the high range, indicating that students were interested in the content area of their course, and felt confident they would master the course material. Average mean scores were reported for the total sample for the Cognitive and Metacognitive, and Resource Management Strategies scales, indicating that the students were making use of appropriate learning strategies and study skills. The researchers also found that students planned their work effectively and exerted effort in their studies. Academically high-achieving students in their sample obtained significantly higher scores on the MSLQ than low achievers, thus supporting evidence from previous international studies (Barker & Olsen, 1995; Lynch & Dembo, 2004; McClendon, 1996; Pintrich et al., 1993). Watson et al. (2003) furthermore found that students who planned their studying, monitored ongoing results, organised their study time, established a regular place of study, consciously persisted in their effort to learn prescribed texts, and regulated or adjusted their behaviours in response to changing demands of the course, performed better academically than those who did not. These findings are consistent with previous international studies (Lynch & Dembo, 2004; Ruohotie, 1996, 2000). However, McSorley (2004) found that the strategy of rehearsal did correlate significantly with the final course grade, suggesting that a reliance on superficial processing strategies is not helpful for academic performance in a South African sample.

**Construct Validity**

McSorley (2004), investigating whether the MSLQ was measuring the same constructs in a multicultural South African context, reported that the items in the measure corresponded with the global constructs measured by the MSLQ’s Motivation and Learning Strategy scales for the three cultural groups under investigation, namely, White, Coloured and African, rather than for the more specific constructs theorised to be tapped by its scales. It was further reported that the MSLQ did not neatly reflect the six theorised motivational dimensions and the nine learning strategy dimensions for her South African sample (McSorley, 2004). Due to a lack of factorial invariance, limited support was therefore found for the construct validity of the MSLQ in a South African context. Factorial invariance is a desirable and
necessary condition in any cross cultural measure, and once demonstrated, the researcher may conclude that the dimensions assessed by the measure are stable across population groups (McSorley, 2004).

**Reliability**

For good internal consistency Kline (1986) recommended .70 as an acceptable minimum threshold value. The Cronbach’s Alpha values found by McSorley (2004) for the 15 MSLQ scales are presented in Table 3.

Table 3
Coefficient Alphas for the 15 MSLQ Scales (McSorley, 2004)

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Coefficient Alphas</th>
</tr>
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<tbody>
<tr>
<td>Intrinsic Goal Orientation</td>
<td>.43</td>
</tr>
<tr>
<td>Extrinsic Goal Orientation</td>
<td>.41</td>
</tr>
<tr>
<td>Task Value</td>
<td>.52</td>
</tr>
<tr>
<td>Control of Learning Beliefs</td>
<td>.31</td>
</tr>
<tr>
<td>Self-Efficacy for Learning and Performance</td>
<td>.79</td>
</tr>
<tr>
<td>Test Anxiety</td>
<td>.64</td>
</tr>
<tr>
<td>Learning Strategy Scales</td>
<td></td>
</tr>
<tr>
<td>Rehearsal</td>
<td>.56</td>
</tr>
<tr>
<td>Elaboration</td>
<td>.70</td>
</tr>
<tr>
<td>Organization</td>
<td>.64</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>.71</td>
</tr>
<tr>
<td>Metacognitive Self-Regulation</td>
<td>.69</td>
</tr>
<tr>
<td>Time and Study Environment Management</td>
<td>.57</td>
</tr>
<tr>
<td>Effort Regulation</td>
<td>.38</td>
</tr>
<tr>
<td>Peer Learning</td>
<td>.58</td>
</tr>
<tr>
<td>Help Seeking</td>
<td>.37</td>
</tr>
</tbody>
</table>

In McSorley’s (2004) study the total reliability for the Motivation Scales was found to be .73. For the six Motivation Scales of the MSLQ the Cronbach Alpha values ranged from .31 to .79, with the Control of Learning Beliefs scale having the lowest coefficient alpha of .31, while the Self-Efficacy for Learning and Performance scale had the highest coefficient alpha of .79 (McSorley, 2004).

For the Learning Strategy Scales, McSorley (2004) found the total reliability was at .88. For the nine Learning Strategy Scales the Cronbach Alphas ranged from .37 to
.71, with the Critical Thinking scale having the highest coefficient alpha of .71, while the Help Seeking scale had the lowest coefficient alpha of .37.

For the majority of the MSLQ scales the coefficient alphas fell below Kline’s (1986) recommended minimum of .70. When comparing the reliability coefficients of McSorley’s (2004) study with results from Pintrich et al. (1993) and Barker and Olsen’s (1995) studies, the Cronbach’s Alpha values in McSorley’s study were found to be less acceptable, however, adequate overall reliability for the Motivation and Learning Strategy scales was confirmed (McSorley, 2004).

The item-total correlation and Cronbach’s Alphas for each item of the MSLQ were calculated. On the Motivation Scales items 2 to 4, 8 to 11, 14 and 19 fell below the recommended item-total correlation, of .20 (Kline, 1986). Five items on the Learning Strategy Scales fell below Kline’s (1986) recommended minimum. These were items 39, 40, 57, 73 and 80. Item-total correlations below .20 are an indication of very difficult items which need to be reviewed for possible confusing language and targeted for revision (Garrett, Alman, Gardner, & Born, 2006). As only a small percent of the total number of items in the MSLQ fell below the cut-point, the item-total correlations were found to be adequate (McSorley, 2004). However, McSorley (2004) indicated that items 7, 23, 35, 46 and 60 showed differential reliability coefficients across the cultural groups.

Due to the lack of factorial invariance, McSorley (2004) advised that the scale scores of the MSLQ should be used with caution when used with a South African higher education population, and that test-takers’ responses to the items should be used more qualitatively to gain insight into students’ motivation and use of learning strategies. It was further recommended that it would be wiser to firstly adapt and modify the MSLQ to clearly establish the constructs which it taps in the South African context and to ensure that it provides a reliable measurement of these constructs, before CAAR uses the measure for admissions and placement decision-making purposes. Several South African researchers have recommended that more studies than have previously been undertaken were needed at various academic institutions and in different academic disciplines (Bosch et al., 2003; McSorley, 2004; Watson et al., 2003).
Chapter Summary

This chapter covered the theoretical background of the MSLQ, its development, the composition of its scales, and its psychometric properties. Literature reviewed internationally and nationally confirms the MSLQ as a useful, reliable and valid measure to assess motivation and learning strategy use. Consensus regarding the overall reliability of the Motivation and Learning Strategy Scales of the MSLQ has been achieved internationally and nationally. However, limited support was found for the construct validity for a South African sample (McSorley, 2004). Noticeably, research on this measure is limited in South Africa. Chapter Three covers the test adaptation process and the constructs needing to be investigated prior to the adaptation of measures developed in one country for use in another country.
CHAPTER THREE
TEST ADAPTATION AND BIAS REVIEWS

Introduction

This study aimed to investigate the applicability of the MSLQ, with respect to aspects related to bias and perceptions about the linguistic and cultural appropriateness of its item content for a South African multicultural, multilingual context. For the scope of this study, thus, specific attention was paid to item bias, its challenges, and the methods of identifying and eliminating such bias. The process of test adaptation, its advantages and disadvantages, as well as standardized guidelines and practical steps for the adaptation of educational and psychological measures for use in multicultural societies, will also be addressed in this chapter. Prior to the test adaptation process, the psychometric constructs of construct validity, content validity, reliability and bias, need to be investigated. Issues pertaining to language and readability are addressed, together with guidelines for writing good test items. The remainder of the chapter focuses on national research relating to bias in the South African context.

Contextual Framework

Educational and psychological assessment represents one of the most important contributions to the behavioural sciences in modern society (Canadian Psychological Association, 1999). With the development of psychology as a profession, and the field of psychological assessment (psychometrics), a great number of psychological measures were imported by various countries, including South Africa, for use in the educational and business sectors, without much consideration for their applicability in terms of their psychometric properties (Foxcroft & Roodt, 2001).

A number of authors have noted that, for the South African population, very few psychological measures have been developed, and most of the tests that are currently used by psychologists and psychometrists are standardised adaptations of measures
originally developed in the United States of America and the United Kingdom (Foxcroft et al., 2004; Huysamen, 1987; Louw & Foster, 1991). Such measures tend to be biased in favour of the Westernised, English-speaking, middle and upper class populations for which they were developed.

Generally psychological instruments are usually designed for a certain context and for a specific purpose, and the way in which test performance is interpreted is linked to the behavioural criteria, norms or cut scores developed in the context in which the test was developed (Foxcroft, 2002). Claasen (1995) emphasised that psychometric measures thus reflect the nature of the culture in which they were developed. Culture, and the related issue of language, thus plays an increasingly important role in cross-cultural assessment, since each time tests developed in one culture are used with another there is potential for misinterpretation unless such cultural issues are considered (AERA, 1999; Chang, 2001).

In many situations, to perform well, test-takers must be able to read, speak and understand English. Within the South African context, research indicates that White English first-language speakers are, in general, mostly familiar with the predominant language and Westernised culture of psychological measures developed overseas (Aston, 2005; McSorley, 2004; Riordan, 2002). However, some test-takers who are not representative of the traditional Westernised culture might, experience language problems that are not necessarily related to the construct being assessed (Morris & Maisto, 1998). Thus, in a multicultural, multilingual South Africa, with eighty percent of the population being Black, and only ten percent speaking English as a first language, test-takers are often assessed in their second or third language (Foxcroft, Paterson, Le Roux, & Herbst, 2004; Foxcroft & Roodt, 2001). It is therefore important when using assessment measures cross-culturally to investigate the appropriateness of their psychometric properties, and, when necessary, to embark on a process of test adaptation. The next section focuses on the process of test adaptation.
Test Adaptation

In psychometric theory the term ‘adapt’ refers to the process of preparing a test or instrument for use in a second language or culture (Hambleton, 1994). In adapted tests, the language remains the same but the words, context and examples are changed to be adequately relevant and applicable to a specific national, language or cultural group (Foxcroft & Roodt, 2001). Interest in adapting tests for use in different languages and cultures has been prevalent for many years (Yopp & Brown, 2000). Hambleton and Bollwark (1991) refer to the early translation of the Binet-Simon Intelligence Scale from French to English in 1911 as one of the earliest examples of such endeavours. Specifically, over the past twenty-five years, knowledge about the discipline of adapting tests for use in different languages and cultures has developed at a rapid pace (Yopp & Brown, 2000). Related driving forces are the recent increased interest in international exchanges of assessment tests, demand for the adaptation of tests for use in multiple languages and cultures, and growth in the field of cross-cultural research (Hambleton & Patsula, 1999; Yopp & Brown, 2000).

However, adapting an existing measure instead of developing an original measure has both advantages and disadvantages (Chang, 2001).

The Advantages and Disadvantages of Test Adaptation

A disadvantage of adapting already existing measures includes the risk of imposing conclusions based on concepts that exist in one culture but which may not exist in another (Chang, 2001), with no guarantees that the concept in the source culture exists in the target culture (Lonner & Berry, 1989). If certain constructs measured in the original version are not found in the target population, or if the constructs are manifested in a different manner, the resulting scores can prove to be misleading (Hambleton, 1994). Notably some cross-cultural researchers have reported that a high percentage of research in their field is flawed to the point of being invalid because of poorly adapted tests (Hambleton, 1998). Glavin (2004) emphasizes, however, that the time and money saved by not adapting tests could lead to inadequate and inappropriate assessment measures, delivering misleading and inaccurate test results in the long run. In this regard, the immediate goal in adapting a
test is to develop a parallel test that acknowledges the linguistic, cultural and social conditions of those who will be taking the adapted test while retaining the measurement of the constructs found in the original test (Oakland, 2004).

Measures that are reliably adapted can enhance the fairness of assessment by, for example, eliminating bias, they can save time and money, use the expertise of other test developers, and facilitate comparative studies at both a national and international level (Beller, Gafni, & Hanani, 1999; Hambleton, 1993; Hambleton & Kanjee, 1995; Hambleton & Patsula, 1999; Kanjee, 2001; Shuttleworth-Jordan, 1996). Adaptations can also provide a sense of security associated with the adapted test, more so than in a newly constructed test, especially when the original test is well known (Hambleton & Patsula, 1998, 1999).

Despite the difficulties associated with using adapted instruments, this practice is important because it leads to greater generalisability of results and for the investigation of differences among a growing diverse population (Yopp & Brown, 2000). Issues of test adaptation, test equivalence and test bias must therefore be considered in order to benefit fully from cross-cultural assessment (Geisinger, 1994; Hambleton, 1994; McIntire & Miller, 2000; Reckase & Kunce, 1999; Sireci, 1997; Van de Vijver & Hambleton, 1996; Van de Vijver & Poortinga, 1997). With the aim of covering the above aspects and deconstructing well-entrenched myths that undermine the value and effectiveness of test adaptation endeavours, the next section focuses on international guidelines for adapting educational and psychological measures.

**International Test Commission (ITC) Guidelines**

The international guidelines for adapting psychological tests were developed with the assistance of the International Test Commission (ITC) and under the direction of Hambleton (Hambleton, Merenda, & Spielberger, 2004), with the objective of producing a detailed set of guidelines for adapting educational and psychological tests for use in various linguistic and cultural contexts (Van de Vijver & Hambleton, 1996). Geisinger’s (1994) work in cross-cultural assessment was especially influential in the ITC’s formulation of the steps for adapting tests (Hambleton & Patsula, 1999).
The Joint Commission, consisting of representatives from the ITC, the European Association of Psychological Assessment, the European Test Publishers Group, the International Association of Applied Psychology, the International Association for the Evaluation of Educational Achievement, the International Language Assessment Association, and the International Union of Psychological Science, established the guidelines for adapting assessment measures in 1994 (Hambleton, 1994; Van de Vijver & Hambleton, 1994, 1996). These guidelines were first presented formally at the 1999 ITC Conference on Test Adaptation held at Georgetown University, Washington, DC. Much has been written about issues, problems and procedures associated with the translation and use of psychological tests in cultures in which the tests were not developed (Cheung & Cheung, 2003; Tanzer & Sim, 1999; Van de Vijver & Hambleton, 1996). The work carried out by the Joint Commission to promote good practice in test adaptation was therefore an important step towards assuring uniformity in the quality of tests adapted for use across different cultures and languages (ITC, 1999).

The ITC guidelines fall into four main categories: those concerned with the context; those concerned with the technicalities of instrument development and adaptation; those concerned with test administration; and those concerned with documentation and interpretation (ITC, 1999). A summary of the 22 guidelines as set out by the ITC (2000) is presented below.

**Context**

1. Effects of cultural differences which are not relevant or important to the main purpose of the study should be minimized.
2. The amount of overlap in the constructs in the populations of interest should be assessed.
Test Development and Adaptation

Test developers / publishers should:

1. Ensure that the adaptation process takes full account of linguistic and cultural differences among the populations for whom the adapted version of the instrument are intended.
2. Provide evidence that the language use in the directions, rubrics, and items themselves, as well as in the handbook, are appropriate for all cultural and language populations for whom the instrument is intended.
3. Provide evidence that the choice of assessment techniques, item formats, test conventions, and procedures, are familiar to all intended populations.
4. Provide evidence that the item content and stimulus materials are familiar to all intended populations.
5. Implement systematic judgemental evidence, both linguistic and psychological, to improve the accuracy of the adaptation process and compile evidence on the equivalence of all language versions.
6. Ensure that the data collection design permits the use of appropriate statistical techniques to establish item equivalence between the different language versions of the instrument.
7. Apply appropriate statistical techniques to establish the equivalence of the different versions of the instrument, and identify problematic components or aspects of the instrument which may be inadequate to one or more of the intended populations.
8. Provide information on the evaluation of the validity of the instrument in all target populations for whom the adapted versions are intended.
9. Provide statistical evidence of the equivalence of questions for all intended populations.
10. Not use non-equivalent questions between versions intended for different populations, in preparing a common scale or in comparing these populations. However, such questions may be useful in enhancing the content validity of scores reported for each population separately.
**Administration**

Test developers / administrators should:

1. Try to anticipate the types of problems that can be expected, and take appropriate actions to remedy these problems through the preparation of appropriate materials and instructions.
2. Be sensitive to a number of factors related to the stimulus materials, administration procedures, and response modes that can moderate the validity of the inferences drawn from the scores.
3. Maintain as similar as possible those aspects of the environment that influence the administration of an instrument across populations for whom the instrument is intended.
4. Specify instrument administration instructions in the source and target languages to minimize the influence of unwanted sources of variation across populations.
5. Ensure the instrument manual specifies all aspects of the instrument and its administration that require scrutiny in the application of the instrument in a new cultural context.
6. Ensure the administrator should be unobtrusive and the administrator-examinee interaction should be minimized. Explicit rules that are described in the manual for the instrument should be followed.

**Documentation / Score Interpretations**

1. When an instrument is adapted for use in another population, documentation of the changes should be provided, along with evidence of the equivalence.
2. Score differences among samples of populations administered the instrument should not be taken at face value. The researcher has the responsibility to substantiate the differences with other empirical evidence.
3. Comparisons across populations can only be made at the level of invariance that has been established for the scale on which scores are reported.
4. The instrument developers should provide specific information on the ways in which the socio-cultural and ecological context of the populations being
assessed might affect performance on the instrument, and should suggest procedures to account for these effects in the interpretation of the results.

Notably, the period since the 1999 conference has witnessed enormous growth in both research interest and applied methodological procedures associated with test translation and adaptation (ITC, 2006). The above-mentioned guidelines, published in 2001, are thus currently in the process of being updated (ITC, 2006). International and national studies lend support to, and recommend the applicability of, the ITC guidelines as an excellent framework to guide researchers in the test adaptation process (Hambleton, 1994; ITC, 1999; Van de Vijver & Hambleton, 1996).

Practical steps in the process of test translation and adaptation, which are largely based on ITC guidelines, were developed by Van Ede (1996), Van de Vijver and Hambleton (1996), and Hambleton and Patsula (1999). A summary of these steps as set out by Hambleton and Patsula (1999), together with suggestions for achieving the implementation of such steps, is outlined below.

**Initial Exploration**

When choosing a suitable measure to explore for possible adaptation:

1. It is essential to select a measure for adaptation that has sound psychometric properties and translatable language before considering the advantages and disadvantages of adapting such a measure rather than developing a new one (Hambleton & Patsula, 1999).

2. Ensure that construct equivalence exists in the language and cultural groups of interest. The constructs tapped by the measure should exist and have the same meaning across both cultures and thus be transportable to the culture of interest. It is helpful to investigate this concept by asking central questions such as: "Does the particular construct exist in both cultures?"; "Does the construct being measured mean the same thing in all considered cultures?" These questions are best answered by people with expert knowledge of test adaptation issues and who are "very familiar with the cultures under review, and who have some knowledge of test construction and the constructs being
measured” (Hambleton & Patsula, 1999, p. 6). Beller, Gafni and Hanani (1999) recommended interviewing or observing people from the cultures of interest to ascertain whether such cross-cultural construct equivalence does exist. Van Ede (1996) emphasised that a bilingual review committee consisting of multicultural and multiregional bilingual participants is strongly advised.

3. The administrative procedure of the test to be adapted should be evaluated to eliminate possible bias, by considering: a) the equivalence of the test content; b) the familiarity of assessment techniques; c) presentation models; d) item formats; e) test conventions and procedures; and f) the influence of the administrator. It is therefore advisable to administer the test to a sample group of the target population in a pilot administration procedure.

Adapting the Test

Test developers / publishers should:

1. Develop a preliminary adapted version of the test, which includes the adaptation of the test content.

2. Review the adapted version of the test and make the necessary revisions. The quality of the adaptation should be carefully examined by a review group, as the review and revision of the adapted test are vital following the initial translation or adaptation. Geisenger (1994) recommends that reviewers comprising an independent panel need to make their individual recommendations before meeting in a group to discuss suggestions and opinions. Significant review practices include an editorial, content, statistical and sensitivity review (Osterlind, 1989).

3. Conduct a small trial of the adapted version of the test. Empirical evidence is essential “to support the validity of inferences from an adapted version of the test” (Hambleton & Patsula, 1999, p 8). The adapted instrument should be pilot-tested using a small sample representative of the target population in order to gain preliminary information about the test and ensure any necessary revision. After the translation or adaptation process, the measure should be tested to confirm its factor structure in the target culture and to establish
whether it exhibits measurement equivalence. A measure has test equivalence “when individuals who are equal in the trait measured by the test, but who come from different cultural and linguistic groups, have the same observed scores” (Ellis, 1989, p. 12).

4. Conduct a field test that is more ambitious, using a larger sample than the one used previously. Statistical analyses, such as reliability, classical item and factor analysis must be conducted to establish construct equivalence.

5. Choose a statistical design for linking scores on the source and target language versions of the test on a common scale. An item response model with a larger sample is the standard way to proceed to produce a stable linking of scores from one test to the other (Hambleton & Patsula, 1999).

6. If cross-cultural comparisons are of interest, ensure equivalence of the language versions of the test and investigate potential cultural bias. To establish whether the adapted test is equivalent to the original, the psychometric equivalence has to be determined. Methods to investigate item equivalence include item analysis and differential item functioning (DIF). The factor structure equivalence should be examined through a confirmatory factor analysis. This is accomplished through the use of an item bias study (often called a “differential item functioning” or DIF study). If there are items that function differently for each group, Hambleton and Patsula (1999) recommend that the researcher should rewrite or retranslate, and then readminister and reanalyse those items to determine whether they function the same for both groups.

7. Perform validation research as appropriate, ensuring that the test scores of the newly adapted test are valid and reliable. This information may be compiled from factor analytical data, or experimental or other correlational information such as predictive or concurrent validity studies. This step may be combined with Steps 4 to 6.

**Responsibilities of the test adapter**

The test adapter should:

1. Document the process and prepare a manual for the users of the adapted test.
2. Train the test users.
3. Continue the ongoing monitoring of the test as the validity and reliability of all tests can be expected to change over time.

These steps can be adopted by professionals embarking on the process of test adaptation. Several South African researchers have benefited from using these steps as guidelines in their investigations of the psychometric properties of instruments developed elsewhere (Aston, 2005; Riordan, 2002). Notably, the present study is a preliminary qualitative study and only the steps from the initial exploration phase will be used for exploring the applicability of the MSLQ, within the South African context, with respect to aspects related to bias, through assessing the item content with specific reference to language and cultural appropriateness.

This section covered international and national literature reviews which emphasised the importance of preliminary psychometric investigations of reliability and validity before embarking on the actual process of the adaptation of any measure (Davies, 2003; Foxcroft, 2002; Foxcroft & Roodt, 2001; ITC, 2000). In addition, a substantial body of literature forewarns that test developers have an obligation to ensure that their test items provide a valid measure of the intended construct (Oakland, 2004). The next sections define psychometric constructs, with particular attention given to construct validity, content validity and bias.

**Construct Validity**

According to Schumacher and McMillan (1993) a psychological construct is an attribute, proficiency, ability or skill that is innate in the human brain and is not directly observable. Examples of psychological constructs include honesty, empathy, friendliness, organisational commitment, self-esteem, job satisfaction and optimism (Chen, 2002). Such psychological constructs can be defined by established theories and measured by well-designed questionnaires (Chen, 2002; Che, Wu, & Ku, 2001; Wielkiewicz, 2000).

The general concept of construct validity is defined as "the degree to which a test measures what it claims or purports to be measuring" (Brown, 1996, p. 231). The
process of construct validation thus involves a network of investigations and other procedures designed to determine whether an assessment instrument designed to measure a certain psychological concept is actually doing so (Aiken, 2000).

According to the National Research Council (1999) construct validity is the most important consideration in test evaluation, so every time an instrument is changed or applied to a new target population, its validity and reliability have to be re-examined, to ensure that the new instrument assesses the same meanings or constructs with the same degree of accuracy as the original test in the new target population and thus to establish cross-cultural validity rather than assuming it (Cheung & Leung, 1998; Cheung & Cheung, 2003; Chiu, 2004; Van Hemert, Baervelt, & Vermande, 2001). In their work Geisinger (1994), Hambleton (2001), and Van de Vijver and Hambleton (1996), argue that such assumptions of cross-cultural validity could be dangerous due to a variety of factors that could influence the validity of scores from an instrument in different cultural settings and languages. Similarly, the American Educational Research Association (1999) cautioned that whenever tests developed in one culture are used in another culture there is the potential for misinterpretation unless cultural issues are considered.

There is thus general consensus among test developers that construct validity must be confirmed throughout the interconnected phases of the assessment processes, from test design and development, to administration, scoring, interpretation, use and test adaptation (National Research Council, 1999). The next section focuses on content validity.

**Content Validity**

Content validity provides evidence about the degree to which the elements of an assessment instrument are relevant to, and representative of, the target constructs (Aiken, 2000; Cozby, 1993; Haynes, Richard, & Kubany, 1995). Haynes et al. (1995) emphasised that content validity is an essential component of construct validity. While it has been accepted within test construction and in test adaptation that measures should be reliable and valid, Clark and Watson (1995) and Huysamen (1996, 2002) notes the central role of construct validity in psychological assessment,
as the construct to be tested must be theoretically described accurately, and specific test questions should be developed to measure the construct adequately. Messick (1989, 1995) also notes that content validity evidence is in fact construct validity evidence in that the content of the construct of interest should be comprehensively sampled, and thus well represented by the content of the instrument.

With construct validity, thus, the question is whether the particular construct exists and its measurement means the same thing in all the considered cultures or targeted populations, whereas, with content validity, the question to answer is whether the measurement adequately covers all the important aspects of the construct (domain) being measured (Barnard, 2000). Addressing these questions often involves expert judgements (Kotras, 2003). Thus far, no qualitative studies have been undertaken both internationally and nationally to address the above-mentioned aspects of the construct and content validity of the MSLQ.

In the majority of psychological, educational, and non-cognitive measures verbal language is used as a primary approach to cover the constructs targeted by the measure. The next section focuses on aspects related to language difficulties or the unfamiliar formatting of items, and readability, as they are particularly pertinent to the adaptation of group tests, such as the MSLQ, where test-takers are required to read the test items and directions. Recommended guidelines for effective item writing will also be provided in this section.

**Language and Readability**

According to Oakland (2004) test developers recognise the importance of attending to issues associated with language and readability when developing test directions, passages and items. Language can be problematic on two levels, namely, the language of the test, and the language competence of the test-takers (Foxcroft, Paterson, Le Roux, & Herbst, 2004). It was previously mentioned that research has found, for example, that the presence of language problems led to test-takers being discriminated against in terms of language proficiency rather than in terms of the psychological constructs being assessed (Foxcroft et al., 2004; Morris & Maisto, 1998).
Language is often described in terms of the following five components: phonemes (intelligible sound units and their combination to form words); morphology (vocabulary and the meaning of words); syntax (language rules that promote meaning); semantics (the meaning of words, phrases and sentences); and pragmatics (the functional use of language) (Oakland & Lane, 2004). Attention to these five features is particularly important when developing and adapting tests (Oakland & Lane, 2004).

Thompson and Thurlow (2002) have emphasised that plain language is a concept now being highlighted in research on assessment, and it has been defined as language that is straight-forward and concise. Oakland (2004) further asserts that test adaptations are likely to be successful when the vocabulary, language syntax, and semantics used in the target test are simple and attempt to promote comprehension and ease mental fatigue. Several strategies identified by Brown (1999) for editing text to produce plain language include: reducing the excessive length of words, the use of common words, avoiding ambiguous or irregularly spelt words, avoiding proper names, avoiding multiple names for the same concept, and using a question mark at the end of each question. The next section briefly outlines more specific guidelines for item writing that have been recommended by Foxcroft and Roodt (2001):

1. Wording must be clear and concise. Clumsy wording and long, complex sentences could make it difficult for test-takers to understand what is required of them. Thurlow and Thompson (2002) maintain that assessment instructions should be easy to understand, regardless of a student’s experience, knowledge, language skills, or current concentration level.
2. Negative expressions including “not” or “never”, and the double negative in particular, should be avoided.
3. Only one central theme in an item should be covered.
4. Ambiguous items should be avoided.
5. The positioning of the correct answer in multiple-choice measures should be varied.
6. True and false statements should be approximately the same length and approximately equal in number.
7. The nature of the content covered should be relevant to the purpose of the measure.

In addition Shaughnessy, Zechmeister and Zechmeister (2003) highlighted the following aspects:

1. Avoid leading, loaded or double-barrelled questions.
2. Questions must be as short as possible (20 words or fewer).
3. Include all conditional information prior to the key idea.
4. Edit for readability. Oakland (2004) maintains that non-language qualities, including test legibility and interest, also impact on readability.
5. The layout of some questions also needed to be adapted in some countries.

In conclusion, the linguistic and reading demands of a measure should be kept to the minimum necessary for the valid assessment of the intended construct, particularly when focusing on the development and adaptation of group tests (Kanjee, 2001).

Given that the purpose of this study is the investigation of the item content of the MSLQ in order to identify items that could be culturally and linguistically biased, the issue of bias is addressed below.

**Bias**

The increasing importance of cross-cultural comparison in assessment has made bias and its detection a major focus of international and national research (Beller et al., 1999). For a test to be fair and unbiased, it must measure the desired construct without being affected by extraneous factors such as gender, culture, ethnicity, and geographic or socio-economic status (Jorgensen, 2005). There are generally three types of bias which could arise when translating or adapting an instrument from another language in cross-cultural studies, namely, construct bias, method bias and item bias (Butcher & Garcia, 1978; Van de Vijver & Hambleton, 1996).

*Construct bias* results when the concept being measured has different meanings for the various cultural groups that are the focus of the study (Foxcroft, 2003; Haynes et
al., 1995), or when the definitions of the construct to be measured only partially overlap across the cultural groups (Church, 2001). Translating an existing instrument is more likely to result in such bias than developing an instrument for different languages simultaneously (Chiu, 2004).

*Method bias* is attributed to the administration procedure of the measure and includes a variety of factors, such as the perceived social desirability of taking the measure among or between groups, test-takers’ non-familiarity with the measurement format, and the physical conditions in which a measure is administered (Chiu, 2004).

As the scope of this study was to evaluate the item bias of the MSLQ with respect to linguistic and cultural appropriateness, a greater focus will be placed on outlining the nature of such bias and methods of identifying it.

*Differential item functioning* (DIF), previously known as the more value-laden term ‘*item bias*’ (Ellis & Raju, 2003; Foxcroft & Roodt, 2001), refers to any empirical method used to flag items for possible item bias (Shealy & Stout, 1993; Whitmore & Schumacker, 1999). Such bias takes the form of certain characteristics of an item or items that result in differential performance for individuals of the same ability but from different ethnic, gender, cultural and religious groups (Fouad, 1994; Hambleton & Rodgers, 1995).

Possible reasons for DIF can usually be traced to the use of unfamiliar, inappropriate or ambiguous language, concepts or examples, test speed and unfamiliar item format (Foxcroft & Roodt, 2001). It can also be caused by anomalies at the item level such as poor translation, poor wording, or incidental differences in the response scale (Van de Vijver & Leung, 1997).

Broadly, factors which can produce bias either at an item level or overall test score level, include differences in gender, language, culture, age, educational background and literacy (Ellis & Raju, 2003). More specifically, and of relevance to the present study, an item may be biased if it contains content or language that is differentially familiar to sub-groups of test-takers and not others, or if the item structure or format is differentially difficult for sub-groups of test-takers (Hambleton & Rodgers, 1995).
Thus, for a measure to be considered free of item bias, it would need to comprise items that were equally familiar to the cultural groups of interest, and thus would not be advantageous to the test performance of one group over another (Aiken, 2000; Hambleton & Patsula, 1995).

The identification and elimination of bias or DIF from any measure increases the reliability and validity of scores (Foxcroft et al., 2001), although Yu (2003) forewarns that the absence of test bias does not guarantee that the test possesses construct validity. These factors need to be taken into account as a substantial body of literature reviewed emphasises the necessity of identifying item and test bias prior to comparing group test scores (Ellis & Raju, 2003).

Over the past decades several methods have been developed and revised to detect and eliminate bias in assessment products. The investigation of item bias and DIF in any measure can usually be conducted on two levels, namely, statistical and judgemental (Foxcroft & Roodt, 2001). These methods are discussed in the next section.

**Statistical Methods for Identifying Item Bias**

Statistical analysis is conducted using data obtained from administering a measure and involves the use of statistical methods for flagging those items that might result in item bias (Foxcroft & Roodt, 2001). Some of these methods are based on classical test theory, for example, the Mantel-Haenszel technique, and the logistic regression method or SIBTEST, while others are based on item response theory, for example, Lord’s Chi Square Test, Factor Analysis, Raju’s Area Measures, and the Likelihood Ratio Test (Ellis & Raju, 2003). Increasingly, DIF analysis is used to identify items that are not comparable between language groups on translated and adapted tests and to establish the equivalence of translated tests (Gierl & Khaliq, 2001; Hambleton, 1994; Sireci, Fitzgerald, & Xing, 1999). DIF analyses are also frequently used to compare the performance on test items of groups that differ in terms of ethnicity, gender, disability status, socio-economic status and age (Ellis & Raju, 2003).
Ellis and Raju (2003) assert that being able to identify DIF or item bias represents a tremendous step forward for test developers but it also raises new and challenging questions. Test developers may, for example, choose to replace differentially functioning items with new items, evaluate the new items for DIF and repeat this process until all items in a test or scale are bias free (Foxcroft & Roodt, 2001). However, if, for example, a lot of differentially functioning items are removed and replaced with new items, the construct assessed may be altered (Ellis & Raju, 2003). Generally, items that produce unexpected group differences are often scrutinised by expert reviewers who attempt to understand why the item may be more difficult for one group of examinees than for another (Foxcroft & Roodt, 2001).

**Judgemental Methods for Identifying Item Bias**

Judgemental analysis, which is the primary method of analysis in the present study, is usually conducted before a measure is administered, and involves the reviewing of a test by a group of experts to identify any items that could be biased, as well as ensuring that the content, for example, language, examples or pictures, would not be offensive to any groups or individuals (Foxcroft & Roodt, 2001; Kopriva, 2000). Expert reviewers should be sensitive to the general level of reading ability of the specific target groups, as this may influence test performance (Oakland & Lane, 2004). Efforts to develop or adapt tests for multilingual, multicultural markets, thus frequently employ panels composed of persons conversant with the language used and cultural characteristics in the specified geographic areas (Oakland, 2004). The role of such panel members (expert reviewers) is to review all test content to ensure that the meaning conveyed by the directions, items and other test features is consistent and comprehensible to persons in the target populations.

In most test development and adaptation a sensitivity reviewing process takes place prior to a DIF analysis (Ellis & Raju, 2003). Nationally researchers and practitioners support the international trend of insisting that the adaptation process should include consultation with cultural experts, linguists and anthropologists, and that the items should be meticulously piloted and refined before use (Foxcroft, 2003). Sensitivity reviews and judgemental reviews are separate and distinct from statistical
DIF analyses, however both are equally important and neither can substitute for the other (Clauser & Mazor, 1998).

The next section provides a brief retrospective overview of psychometric research in South Africa focusing specifically on bias research.

**Psychometric Assessment and Research into Bias in the South African context**

Similar to the trends in most developing countries in Africa, psychometric assessment in South Africa has its roots in the development and assessment practised in the United States of America, the United Kingdom and Western Europe, reflecting our colonial heritage (Foxcroft, 1999; Foxcroft & Roodt, 2001; Health Professions Council of South Africa, 2000; Huysamen, 1987; Psychometrics Committee, 1998; Smit, 1996). Psychometric measures developed within this Western context are by nature of their target populations English language based, thus raising concerns about the appropriateness of their use with populations whose culture and mother-tongue language are different. This is of particular concern in a country like South Africa where, as mentioned previously, the midyear estimates for 2006, by population group, show that Africans constitute about eighty percent of the South African population, and fewer than ten percent of South Africans are English first-language speakers with the rest of the population notably heterogeneous in terms of language (Statistics South Africa, 2006).

This situation is further exacerbated by the fact that past apartheid policies impacted negatively on test development and use in South Africa in that separate tests were designed for different racial categories with the result that few tests are available that have been designed and standardized for all South Africans (Foxcroft, 1999; Health Professions Council of South Africa, 2000; Psychometrics Committee, 1998). The fact that few tests are available for African language speakers often poses a serious challenge when working cross-culturally with tests and this becomes exacerbated when working with test-takers from rural backgrounds who find it difficult to express themselves in English (Foxcroft et al., 2004). This has been a problem area since the early development and use of psychological tests in South Africa (Davies, 2003; Huysamen, 1987; Louw & Foster, 1991; Riordan, 2002).
Although psychological measures have been widely used in South Africa, the first thorough study of bias was undertaken by Owen only in 1986 (Foxcroft & Roodt, 2001). Later studies by, for example, Abrahams (1991), Owen (1989a, 1989b), Retief (1992), Taylor and Boeyens (1991), and Taylor and Radford (1986), showed that bias was widespread in South African ability and personality measures. Other studies suggested that factors such as language, socialization experience, socio-economic status, education, culture, race, and social class may bias intelligence test results (Helms, 1992; Nell, 1994; Owen, 1992; Shuttleworth-Jordan, 1996). The consequence of such a lack of empirical research into test bias is that test-takers and test users were left with very little empirical certainty about the cultural appropriateness and thus validity of the measures that they used (HPCSA, 2000; Psychometrics Committee, 1998). The importance of establishing the psychometric properties of measures is notably a growing area in psychometrics and is regarded as being fundamental for enhancing ethical psychological assessment in South Africa (Foxcroft, 1998; HPCSA, 2000; Nel, 1997). Presently test publishers have an obligation to provide relevant and accurate information about the reliability and validity of the tests published and about the steps taken to eliminate test bias with regard to aspects such as language, gender, culture and socio-economic status (Owen, 1998).

Researchers and assessment practitioners recognize the need for assessment measures in a multilingual, multicultural country like South Africa because valid assessment is a necessary condition for equity, the transformation process and the efficient management of personal development in education and industry (Davies, 2003; Foxcroft & Roodt, 2001; Plug, 1996; Riordan, 2002; Snelgar & Potgieter, 2003). This need was highlighted by Foxcroft and her colleagues (2004) who found in their study which explored the test use patterns and needs of psychological assessment practitioners nationally, that such practitioners were appealing for more training in cross-cultural test use, test adaptation, the interpretation of cross-cultural test results, and for tests that are culturally appropriate, are available in all the official languages, and are psychometrically sound and regularly updated. The use of psychological assessment was found to be on the increase nationally and it was being perceived more positively (Foxcroft et al., 2004). These researchers further emphasised that such assessment is of added value only “if tests are culturally appropriate,
psychometrically sound and are used in a fair and ethical manner by well trained practitioners” (Foxcroft et al., 2004, p.131).

While the need for psychometrically sound and appropriate assessment measures in South Africa is clear, the process of developing new tests is both slow and very expensive (Aston, 2005; Glavin, 2004; Shuttleworth-Jordan, 1996). It is thus vital that South African assessment practitioners take advantage of available, internationally relevant measures as far as possible (McSorley, 2004). According to Shuttleworth-Jordan (1996) such measures can serve as a baseline for modifying culturally loaded test items in the South African context and for developing localized norms.

The critical question in this study, therefore, was to investigate whether the item content of the MSLQ is linguistically and culturally appropriate for a multicultural South African context, where, for the majority of students, English is a second or third language.

Chapter Summary

This chapter defined important psychometric constructs which need to be investigated prior to the test adaptation process, when using measures developed in one country for use in another country. These included, reliability, construct validity, content validity and bias. Aspects related to language difficulties and readability were explored as they are important when adapting group tests. The advantages and disadvantages of adapting psychological measures were explored together with the process of test adaptation, and ITC guidelines and the practical steps developed to guide researchers and practitioners. Pertinent to the aims of this study, particular attention was given to item bias, methods to eliminate such bias. South African bias reviews were also reported. It was noted that international and national researchers and test developer have been made fully aware of their obligation to produce tests that are free from bias and that are psychometrically reliable and valid.
Chapter Four focuses on the methodology employed to achieve the aims of this study, with particular attention given to sampling, ethical considerations, and methods of data collection and analysis.
CHAPTER FOUR
METHODOLOGY

Introduction

This study aimed to explore the applicability of the MSLQ with respect to aspects related to bias in a South African context. Chapter Four includes the description of the methodological approach that was employed in order to address the above-mentioned aim. Pertinent information regarding the participants, procedure, data collection, ethical considerations and data analysis are also clarified in this chapter.

Problem Formulation and Motivation

A definite trend has emerged in South African higher education for institutions to augment matriculation results with psychometric assessment results as part of their admissions criteria (Greyling, 2000; Seymour, 2002). Among the cognitive variables included in admissions assessment batteries that have been found to be predictors of higher education academic performance in South Africa are English language proficiency (Van Eerden, De Beer, & Coetzee, 2001), reading comprehension, numerical and mathematical proficiency, and critical thinking or reasoning skills (Seymour, 2002; Skuy et al., 1996; Van der Walt, 2000). Furthermore, the inclusion of non-cognitive variables alongside cognitive variables has been found to increase the prediction of academic performance (Applebome, 1995; Claassen, 1995; Huysamen, 2002; Livingstone, 1996; Pickering et al., 1992; Sedlacker, 1998b; Van der Walt, 2000). Presently thirteen South African higher education institutions assess for non-cognitive variables as part of their admissions assessment batteries in order to potentially enhance the predictive validity of their admissions criteria (Huysamen, 2002; Van der Walt, 2000).

Previously the Non-Cognitive Questionnaire (NCQ) was included as part of the University of Port Elizabeth’s Admission and Placement Assessment Programme’s
(APAP) assessment battery, however, as research on the NCQ by Schmidt (1990), Janse van Rensburg (1999) and Riordan (2002) has questioned the applicability of the measure within the South African context, APAP decided to assess the intake of applicants for years 2003 through to 2005 using the Motivated Strategies for Learning Questionnaire (MSLQ).

Pintrich et al. (1986) designed the MSLQ to assess the motivational orientation and use of learning strategies of American college students (Garcia & Pintrich, 1995). In Chapter Two the literature reviewed highlighted that this instrument is largely based on a general social cognitive view of motivation and learning strategies (Pintrich, 1988a, 1988b, 1989; Weinstein & Mayer, 1986) with the student represented as an active processor of information, whose beliefs and cognitions are important mediators of instructional input and task characteristics (Kivinen, 2002).

The importance of preliminary psychometric investigations of reliability, validity, and bias before embarking on the actual process of adaptation of any measure developed in another country was extensively discussed in Chapter Three. These types of investigation are particularly pertinent in a multicultural, multilingual country such as South Africa, in order to ensure that items on the MSLQ do not favour or disadvantage any groups of test-takers, and thus to promote fair assessment practices.

The MSLQ has been extensively researched and used internationally, with fewer studies conducted in South Africa, however. McSorley’s (2004) investigation with higher education students into whether the MSLQ measures the same constructs in a multicultural South African context, found that the items in the measure corresponded with the global constructs measured by the MSLQ’s scales for the White, Coloured and African cultural groupings, but not for the more specific constructs theorised to be tapped by their scales. With the exception of 14 items, the item-total correlations were acceptable, however, five items showed differential reliability coefficients across the cultural groups (McSorley, 2004).

It was further confirmed that the MSLQ has adequate reliability for the Motivation and Learning Strategy Scales, suggesting that the items generally tap these two global constructs (McSorley, 2004). McSorley (2004) found a lack of factorial invariance for
her multicultural higher education sample and thus limited support was found for the construct validity of the MSLQ within the South African context. In the light of these findings, McSorley (2004) recommended that the MSLQ was an appropriate measure for test adaptation but concluded that further research was needed to ensure the applicability of the MSLQ within a multicultural, multilingual South African context. McSorley (2004) also highlighted the lack of qualitative research and the need for such research to augment the findings of the quantitative research.

The general aim of this study thus was to explore the item content of the MSLQ in order to identify potentially problematic items in terms of language and cultural bias. A quantitative and qualitative investigation was initiated to generate data to assist in the adaptation process of the MSLQ and to lay the groundwork for future research. This study formed part of a broader research project on the MSLQ and it was anticipated that the findings would be valuable in making recommendations about the applicability of the MSLQ in a South African context, and, more specifically, whether it should be adapted or not, and whether any items needed to be rewritten to remove any bias. The next section covers the research method employed.

**Research Method**

In order to achieve the aim of this study, a quantitative and qualitative exploratory-descriptive investigation was conducted using an expert review group in order to generate information about aspects of potential linguistic and cultural bias of the item content of the MSLQ.

A quantitative methodological approach was employed as numerical values were assigned to some of the data obtained from the Bias Review Form. As the nature of the study was exploratory-descriptive, only descriptive statistics were used to describe the quantitative data. These will be covered in-depth in the data analysis section of this chapter.

Furthermore, a qualitative methodological approach was also used to achieve the aim of this study. Qualitative data refers to any information that the researcher gathers that is not expressed in numbers (Tesch, 1990). De Vos, Strydom, Fouche and Delport
(2002) emphasised that a qualitative research approach aims to build knowledge for future practice by providing a rich description of situation-specific data to inform actions. With qualitative research, thus, the emphasis is on process rather than outcome, with the primary aim being an in-depth description and understanding of actions and events (Babbie & Mouton, 2001). Grounded in the experience of the participants, qualitative research is tolerant of ambiguities and contradictions (Denscombe, 2003). Another benefit of selecting a qualitative research method is the ability of the researcher to study emergent themes within a specific context in depth and in detail (Denscombe, 2003). Various international and national researchers have increasingly begun to use and appreciate the value of qualitative data in the process of instrument development and validation (Aroian & Schappler-Morris, 1996; Aston, 2005; Kotras, 2004; Lee, Choe, Kim, & Ngo, 2000; Riordan, 2002).

The qualitative approach used followed an exploratory-descriptive research method, as this was most appropriate to the nature of the present study. Dane (1990) defines exploratory research as an attempt to determine whether a phenomenon exists or not. Exploratory studies adopt an open, flexible and inductive approach to research, as they seek new insight into research problems (Terre Blanche & Durrheim, 1999). Furthermore, this approach accepts that there are multiple ways of interpreting experiences and that it is the meaning of peoples’ experiences that constitutes their reality (Bogdan & Biklen, 1992).

Pennock-Roman and Seo (1999) recommend that an exploratory approach is most suitable especially when little or no previous research has investigated the underlying constructs of a measure, as is the case with the MSLQ in South Africa. Indeed, this is the first study conducted on the MSLQ using qualitative and quantitative methods for data collection and analysis for purposes of formulating background information and encouraging further research into the adaptation of the measure.

For the purposes of this study a descriptive research method was also employed. This kind of approach is suitable in that it allows the researcher to describe what exists in a group of individuals in a particular situation (Mouton & Marais, 1990), and, at times, to describe the relationship between or among variables (Christensen, 1985), allowing for, in this case, detailed descriptions of the expert review group’s
perceptions with regard to the language and cultural appropriateness of the items of the MSLQ.

Despite these positive aspects of qualitative research, a common limitation in both qualitative and exploratory research is that, often depending on small groups of participants (as in this study), and lacking the scientific rigour of reliability (Bailey, 1987), it lacks the generalizability associated with quantitative research approaches (Hamel, Dufour, & Fortin, 1993; Yin, 1984, 1993, 1994).

In order to counteract the above limitation, Guba’s (1981) model for assessing the trustworthiness of qualitative data and for data verification was employed.

**Participants**

A purposive sampling procedure was employed to select participants to act as expert reviewers in order to gather quantitative and qualitative data using the Bias Review Form. From the literature reviewed, it is clear that non-probability, purposive sampling techniques are increasingly being utilised for research purposes and are also recognised as effective exploratory research techniques for qualitative data gathering (Barnard, 2000). An advantage of purposive sampling is that researchers can use their own research skills and prior knowledge of the participants’ areas of expertise, experience and interest to choose the respondents (Bless & Higson-Smith, 1995; Kottras, 2004), who are likely to be knowledgeable and informative about the phenomenon the researcher is studying (Leedy, 1993).

Literature reviewed emphasises that expert reviewers perform a fundamental role in the test development and adaptation processes (Foxcroft & Roodt, 2001; Hambleton, 1994; Hambleton & Pastula, 1999). Although the participants in a qualitative study may never be truly representative of the larger population (Morgan, 1998), generally this method of sampling is adequate if the researcher has no desire to generalise the findings beyond the group of participants (Bailey, 1987).

The criteria for participant selection in a study should be based on the purpose of the study (Jones, 2002; Krueger, 1994; Shaughnessy, Zechmeister, & Zechmeister,
Participants in this study were, therefore, selected on their competence and knowledge of the content and constructs covered by the MSLQ, their professional experience either in counseling or in lecturing academic and life-skills programmes to first-year university students, or, as research psychologists, on their experience in test development and adaptation. In addition, participants were from the three dominant language groups in the Eastern Cape Province and of the NMMU student body, namely English, Afrikaans and Xhosa.

The combination of the participants’ characteristics in terms of educational background, experience in working with first-year students, test development and adaptation, as well as their cultural backgrounds and home languages, placed them in a strong position to make a valuable input. This selection process was in line with Step 2 of the Practical Steps for Test Translation and Adaptation (Hambleton & Patsula, 1999; Van de Vijver & Hambleton, 1996; Van Ede, 1996), which recommends utilizing people who are “very familiar with the cultures under review, and who have some knowledge of test construction and the construct being measured” (Hambleton & Pastula, 1999, p. 6).

By selecting an expert review group that was heterogeneous in terms of age, culture, gender and language, but homogenous in terms of postgraduate educational status and being employees at the NMMU, the participant selection criteria used in this study were also in keeping with the suggestion of Krueger (1994) that there should be sufficient variation among participants to allow for contrasting opinions, but also a degree of homogeneity. The homogeneity of the participant group was achieved by employing the above-mentioned purposive sampling technique. Foxcroft and Roodt (2001) emphasised that these procedures, when properly applied, can provide useful qualitative information which is not otherwise accessible.

For the purpose of this study the participants comprised thirteen South African employees of the Nelson Mandela Metropolitan University (NMMU). The next section provides descriptive statistics from the short biographical questionnaire included in the Bias Review Form. Table 4 reflects a breakdown of the demographics of the participants.
Table 4
Biographical Details of the Participants (n = 13)

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>4</td>
<td>30.76</td>
</tr>
<tr>
<td>30-39</td>
<td>4</td>
<td>30.76</td>
</tr>
<tr>
<td>40-49</td>
<td>3</td>
<td>23.07</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>15.38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA Honours</td>
<td>6</td>
<td>46.15</td>
</tr>
<tr>
<td>Masters in Educational Psychology</td>
<td>1</td>
<td>7.69</td>
</tr>
<tr>
<td>Masters in Research Psychology</td>
<td>3</td>
<td>30.76</td>
</tr>
<tr>
<td>D-Phil</td>
<td>3</td>
<td>30.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>3</td>
<td>23.07</td>
</tr>
<tr>
<td>Coloured</td>
<td>3</td>
<td>23.07</td>
</tr>
<tr>
<td>White</td>
<td>7</td>
<td>53.80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Home Language</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaans</td>
<td>4</td>
<td>30.76</td>
</tr>
<tr>
<td>English</td>
<td>6</td>
<td>46.15</td>
</tr>
<tr>
<td>Xhosa</td>
<td>3</td>
<td>23.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>11</td>
<td>84.61</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>18.18</td>
</tr>
</tbody>
</table>

The participants’ ages ranged from 28 to 48 years old, with the average age being 36 years. In terms of gender distribution, the majority (84.61%) of the participants were females. Regarding ethnicity, the majority (53.80%) of participants were representative of the White cultural grouping. From Table 4 it is also evident that the majority (46.15%) of participants spoke English as a home language. Finally, the educational status of the participants ranged from Honours to Doctoral degrees, with the majority (46.15%) having attained an Honours degree.

Tables 5 to 8 present the work experiences of the expert reviewers according to their cultural and language groupings.

Table 5
Work Experience of the Black Xhosa-speaking participants (n = 3)

<table>
<thead>
<tr>
<th>Black Xhosa-speaking</th>
<th>Educational Status</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>Honours</td>
<td>Lecturing for eight years</td>
</tr>
<tr>
<td>Participant 2</td>
<td>Honours</td>
<td>Lecturing for two years</td>
</tr>
<tr>
<td>Participant 3</td>
<td>Honours</td>
<td>Lecturing for four years</td>
</tr>
</tbody>
</table>
The Black Xhosa-speaking group was comprised of lecturers in academic and life-skills programmes at the NMMU.

Table 6
Work Experience of the Coloured English-speaking participants (n = 3)

<table>
<thead>
<tr>
<th>Coloured English-speaking</th>
<th>Educational Status</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 4</td>
<td>Honours</td>
<td>Nine years experience in secondary education; seven years in a College of Education; four years lecturing in mainstream university programmes; and five years lecturing in Foundation Phase, with one year as a first-year Orientation Co-ordinator</td>
</tr>
<tr>
<td>Participant 5</td>
<td>MA Educational Psychology</td>
<td>Eight years in Secondary Education; eight years in assessment in special education, and five years in counselling and academic development at a higher education institution</td>
</tr>
<tr>
<td>Participant 6</td>
<td>MA Research Psychology</td>
<td>Three years experience in test development, evaluation, and research</td>
</tr>
</tbody>
</table>

In addition, all participants from the Coloured English-speaking group had a Psychology background, with the majority being registered Psychologists.

Table 7
Work Experience of the White English-speaking participants (n = 3)

<table>
<thead>
<tr>
<th>White English-speaking</th>
<th>Educational Status</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 7</td>
<td>MA Research Psychology</td>
<td>Research psychologist; experience in lecturing and testing</td>
</tr>
<tr>
<td>Participant 8</td>
<td>D-Phil</td>
<td>Lecturing; test development, adaptation and research</td>
</tr>
<tr>
<td>Participant 9</td>
<td>D-Phil</td>
<td>Senior lecturer</td>
</tr>
</tbody>
</table>
The majority of the White English-speaking participants comprised registered Research Psychologists with lecturing experience. Table 8 covers the work experience of the White Afrikaans-speaking participants.

Table 8

<table>
<thead>
<tr>
<th>White Afrikaans-speaking</th>
<th>Educational Status</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 10</td>
<td>D-Phil</td>
<td>Lecturing</td>
</tr>
<tr>
<td>Participant 11</td>
<td>Honours</td>
<td>Lecturing; group facilitation and psychometric assessment of students</td>
</tr>
<tr>
<td>Participant 12</td>
<td>Honours</td>
<td>Primary and secondary teaching; higher education lecturing for 13 years; academic projects focused on language development (Mathematics and International projects)</td>
</tr>
<tr>
<td>Participant 13</td>
<td>MA Research Psychology</td>
<td>Lecturer and research psychologist</td>
</tr>
</tbody>
</table>

While fifty percent of the White Afrikaans-speaking participants held Honours degrees, the entire group had lecturing experience.

**Data Collection Method**

The Motivated Strategies for Learning Questionnaire (MSLQ) was discussed extensively in Chapter Two. Reference was made to the description of the instrument’s 15 scales, its psychometric properties and educational applicability. To recapitulate, this non-cognitive measure was one of the first instruments based on the integration of motivation and information-processing theories of learning (McClendon, 1996), and was designed to assess the motivational orientation and use of learning strategies among college students (Garcia & Pintrich, 1995). Although the MSLQ was not administered to participants in this study it nonetheless provided the
stimulus for the expert reviewers when they responded to the questions regarding the cultural and language appropriateness of the MSLQ items.

A Bias Review Form (Appendix C) was utilised to collect data from the expert reviewers regarding the appropriateness of the items of the MSLQ. It comprised three main sections.

Section 1

Section 1 was composed of a short biographical questionnaire. This was used to collect information about the participants’ names, ages, gender, educational qualifications and working experience, as well as their cultural backgrounds, ethnicity, and home languages.

Section 2

Participants were requested to provide information on the item content of the MSLQ and to identify potentially problematic items in terms of linguistic and cultural appropriateness. This was to ensure that items on the MSLQ did not favour or disadvantage any cultural or language groups. In this section of the Bias Review Form the response categories for the 81 items of the MSLQ were categorized into “Yes”, “No”, and “To an Extent”. These response categories were used for both the cultural and linguistic appropriateness of the items for purposes of consistency and to reduce confusion. Based on their experience and expertise in test development and adaptation, and in working with university students from divergent cultures and languages, the expert reviewers independently identified items that they believed were problematic either linguistically or culturally, or both and provided suggestions and recommendations for their improvement and adaptation.

Section 3

Based on their review of the language and cultural appropriateness of the items of the MSLQ in Section 2, the expert reviewers were requested to provide an overall assessment of the appropriateness of the measure, particularly as to whether they felt
it was biased against certain groups. Participants were further encouraged to provide motivations for their overall conclusions.

The Bias Review Form thus aimed to provide the researcher with access to both the individual and collective views and opinions of the participants with regard to the MSLQ.

**Procedure**

Permission for the proposed study was sought from the Ethics Committee of the Nelson Mandela Metropolitan University (NMMU). A list of 25 potential participants to act as expert reviewers was then finalised. The participants were recruited by means of a letter (Appendix A) which included the necessary background information about the MSLQ and the aim of the study. All participants received a copy of the Bias Review Form (Appendix C) and a consent form (Appendix B) covering ethical issues such as informed consent, voluntary participation, confidentiality, and feedback regarding the findings of this study. This was in line with the ethical requirements and recommendations for research of the Ethical Code of Professional Conduct (HPCSA, 2002) and with McMillan and Schumacher (2001) who emphasised that respondents should never be coerced into participating.

Information about the purpose of the research, why it is important and how it would benefit academics and students, was also included as part of the communication, as this was a means to increase the likelihood of gaining more participants to act as expert reviewers. This is in line with Krueger’s (1994) recommendation that participants should be provided with information about the purpose of a research project. The letter concluded with an invitation to participants to ask questions telephonically if they needed further clarity.

Participants were further contacted telephonically and via email to remind them of submission dates. Of the 25 potential participants contacted, only 13 returned completed informed consent forms together with the Bias Review Forms. The Bias Review Form data was captured on an Excel spreadsheet and analysed according to the statistical procedures relevant for the purpose of this study. The biographical
details were also incorporated into the Excel spreadsheet. Statistica software package (StatSoft, 1998) was used to analyse the quantitative data. The participants’ responses and suggestions were categorised into themes using Tesch’s (1990) model of content analysis. The methods of data analysis will be elaborated upon in the next section.

Data Analysis

Quantitative Data Analysis

Quantitative data was collected from the participants’ responses to Section 2 of the Bias Review Form and incorporated into the Excel spreadsheet together with the data from Section 1, and Statistica for Windows (Statsoft, 1998) was used to obtain the frequency counts which were calculated for the response categories “Yes”, “No”, and “To an Extent” with respect to the language and cultural appropriateness of the 81 items of the MSLQ. Given the small number of participants and the nominal nature of the data, it was not possible to perform more sophisticated parametric or non-parametric analyses.

Qualitative Data Analysis

Data analysis is used to bring order, structure and meaning to the mass of collected information (Strydom & Venter, 2002). The data was analysed by means of content analysis. This is a structured technique commonly applied to qualitative data in which the researcher constructs a set of categories, analyses individual data against these categories and classifies the data accordingly (Tyson, 1995). This entails reading through the data repeatedly and breaking it down into themes and categories, and then rebuilding it through elaborating and interpreting (Terre Blanche & Durrheim, 1999). The qualitative data supplied by the experts was analysed using Tesch’s (1990) approach of coding and categorizing the themes, before organizing them under headings that were relevant to the responses obtained from the Bias Review Form (Creswell, 1994; De Vos, 1998). The data was analysed in eight steps according to Tesch’s (1990) model. These steps are outlined below:
1. The first step involves reading through the information gathered in order to gain an overall picture of the data. Responses to the Bias Review Form by the expert reviewers were studied.

2. The second step involves selecting certain material from the raw data for the identification of emerging themes. In this study the items of the MSLQ were first categorised according to their scales and then the responses of the expert reviewers were categorised for each scale.

3. The third step was to elaborate on the data discussed above by considering similar themes in the remaining data and identifying new themes.

4. Once new themes had been identified, the data was reviewed and coded according to categories.

5. Names in the form of descriptive wording were then selected for the various identified themes and categories.

6. After the selection of descriptive wording came the abbreviation of these categories and theme names to create thematic labels.

7. The seventh step comprised assembling all the data in one place according to the identified themes and categories. This process was facilitated in the present study through the use of tables.

8. Finally, Tesch (1990) recommended that the researcher re-code existing data if necessary. An independent co-reviewer with a Masters Degree in Psychology and previous experience in qualitative methods of data collection and analysis was recruited in order to verify the accuracy of the identified themes.

\textit{Components of Trustworthiness}

Various terms may be used when reference is made to the trustworthiness of qualitative research, for example, replicability, verification, credibility, integrity (Anfara, Brown, & Mangione, 2002), authenticity and goodness (Arminio & Hultaren, 2002), and auditability (Krefting, 1991). However, the general term “trustworthiness” is preferred by most researchers (Anfara et al., 2002; Arminio & Hultaren, 2002; Krefting, 1991; Poggenpoel, 1998) as it clearly refers to establishing confidence in the research findings.
In order to assess the trustworthiness of the qualitative data, Guba’s (1981) comprehensive model of trustworthiness was employed in this study. This model identifies four primary components of trustworthiness that are relevant to qualitative research: truth-value, applicability, consistency and neutrality (De Vos, 1998). “Truth-value or credibility is perhaps the most important criterion for the assessment of qualitative research” (Krefting, 1991, p. 216). According to Krefting (1991) truth-value is based on the degree to which the researcher is confident that he or she has accurately reconstructed and represented the multiple realities revealed by the participants of the study. Applicability can be defined as the degree to which the findings can be applied to other contexts or settings (Krefting, 1991). Consistency, on the other hand, refers to whether the findings would be consistent if the inquiry were to be replicated with the same respondents or in a similar context (Krefting, 1991).

In order to address the above-mentioned aspects of trustworthiness, the researcher provided an in-depth description of the selection procedure of participants and the methods of data collection, analysis and interpretation utilized. In addition, ongoing consultations were held with the researcher’s supervisors who examined the research plan and reviewed the process of research, the product, findings, interpretations and recommendations. An independent reviewer was also employed to subject the findings to further neutral peer examination.

The fourth component of trustworthiness, neutrality, refers to the freedom from bias in the research procedures and results (Krefting, 1991). In this regard, in addition to the above-mentioned strategies, the researcher also reflected throughout the study on the influence of her own characteristics, biases and preconceived assumptions, as these could have influenced the researcher’s neutrality (Krefting, 1991). The totality of the above-mentioned strategies was used to reduce the potential for the researcher’s subjectivity and bias in the data analysis and to enhance the reliability of the themes identified, hence enhancing the truth value of this study.

**Chapter Summary**

This chapter outlined the aim of this study and provided an understanding of the methodological approach employed for the purpose of achieving this aim. Reference
was made to the research procedures and to ethical considerations. The following chapter will report on the results obtained from the statistical and content analyses.
CHAPTER FIVE
RESULTS AND DISCUSSION

Introduction

The thirteen expert reviewers completed the Bias Review Form with the aim of exploring the applicability of the MSLQ with respect to aspects related to bias. This was facilitated through assessing the item content with specific reference to language and cultural appropriateness. The sample comprised employees at the NMMU, with postgraduate educational qualifications, who are competent and knowledgeable about the content and constructs covered by the MSLQ, and with professional experience in counselling or lecturing in academic and life-skills programmes to first-year university students, or research psychologists with experience in test development and adaptation. The findings of this study are presented according to the two methods of data analysis employed, namely, quantitative and qualitative. First, the quantitative results regarding the language and cultural appropriateness of the items of the two sections of the MSLQ will be presented, followed by a summary of these results. Themes and sub-themes that emerged as a result of the qualitative analysis will then be presented and summarized. In the remainder of this chapter the findings of this study are discussed in relation to previous research studies.

Quantitative Results

For the purposes of recording the quantitative results of this study, the 81 items of the MSLQ are clustered into its two main sections namely, the Motivation Scales and the Learning Strategy Scales. Tables 9 and 10 reflect the quantitative results obtained from the expert reviewers’ responses regarding the language and cultural appropriateness of the MSLQ. All items that were identified as having aspects affecting their language and cultural appropriateness will be discussed in more detail in the section dealing with the qualitative results.
The following sub-section focuses on the results obtained for the six scales that make up the Motivation Section of the MSLQ.

**Language and Cultural Appropriateness of the Motivation Scales**

In Table 9, column one names the Motivation scales and column two identifies the specific items that make up each scale. In columns 3 to 8, the number of reviewers who responded to each of the response categories is given.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Item</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
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</thead>
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<td></td>
<td>28</td>
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<td>-</td>
</tr>
</tbody>
</table>
Of the thirty-one items that make up the Motivation Scales of the MSLQ, eight were found by all the reviewers to be both language and culturally appropriate for the multicultural and multilingual groups targeted in this study. These were items 1, 10 to 12, 21, 23, 28 and 30.

**Language Appropriateness**

Ten items in the Motivation Scales of the MSLQ were found by all the reviewers to be language appropriate for the multilingual target group. These were items 1, 10 to 12, 21, 23, 24, 26, 28 and 30. Whereas items 14, 16 and 31 were perceived by eight of the thirteen reviewers as being language appropriate, the remainder of the 18 items were perceived as such by between 9 and 12 of the reviewers. Thus, 21 items were identified as having aspects that affected their language appropriateness, to varying degrees.

**Cultural Appropriateness**

Nineteen items in the Motivation Scales of the MSLQ were identified by all reviewers to be culturally appropriate for the multicultural target group. These were items 1, 5, 10 to 15, 17 to 23, 25, and 28 to 30. Ten of the thirteen expert reviewers perceived items 4 and 26 as being culturally appropriate, whereas the remainder of the ten items were perceived as such by between 11 and 12 of the reviewers. Thus, 12 items were identified as having aspects that affected their cultural appropriateness, to varying degrees.

The next section focuses on the results obtained for the nine scales in the Learning Strategy section.

**Language and Cultural Appropriateness of the Learning Strategy Scales**

Table 10 presents the results obtained regarding the language and cultural appropriateness of the items in the Learning Strategy Scales.
Table 10
Quantitative Results for Language and Cultural Appropriateness: Learning Strategy Scales

<table>
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<tr>
<th>Scales</th>
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<td>Elaboration</td>
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<td></td>
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<td>Time and Study Environment Management</td>
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<td>12</td>
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<td>Effort Regulation</td>
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<td></td>
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<td>74</td>
<td>13</td>
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</table>
Table 10 (Continued)
Quantitative Results for Language and Cultural Appropriateness: Learning Strategy Scales

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Item</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
</tr>
</thead>
<tbody>
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<td>Yes</td>
<td>To An Extent</td>
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<tr>
<td>Peer Learning</td>
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<td></td>
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<tr>
<td></td>
<td>75</td>
<td>13</td>
<td>-</td>
</tr>
</tbody>
</table>

Of the 50 items in the Learning Strategy Scales, nine were found to be both language and culturally appropriate. These were items 39, 45, 48, 50, 51, 68, 74, 75 and 78.

Language Appropriateness

Twelve items in the Learning Strategy Scales were found by all the reviewers to be language appropriate. These were items 39, 45, 48, 50 to 52, 58, 62, 68, 74, 75 and 78. Eight of the thirteen expert reviewers perceived item 43 as being language appropriate, whereas items 32, 47, 53 and 54 were perceived as such by nine reviewers. The remainder of the 33 items was perceived as such by between 10 and 12 of the reviewers. Thus, 38 items were identified as having aspects that affected their language appropriateness, to varying degrees.

Cultural Appropriateness

Twenty-seven items in the Learning Strategy Scales were reported to be culturally appropriate. These were items 33 to 35, 37 to 40, 45, 48, 50, 51, 54, 55, 57, 61, 64, 65, 68, and 71 to 80. Whereas item 47 was perceived by nine of the thirteen expert reviewers as being culturally appropriate, the remainder of the 22 items were perceived as such by between 11 and 12 of the reviewers. Thus, 23 items were
identified as having aspects that affected their cultural appropriateness, to varying degrees. The next section provides a summary of the quantitative results.

**Summary of the Quantitative Results**

Of the 81 items that make up the MSLQ, only seventeen items were viewed as both language and culturally appropriate. These were items 1, 10 to 12, 21, 23, 28 and 30 in the Motivation Scales and items 39, 45, 48, 50, 51, 68, 74, 75 and 78 in the Learning Strategy Scales.

For both sections of the MSLQ, the content of twenty-two items was accepted as language appropriate for the multilingual target group. These were items 1, 10 to 12, 21, 23 to 24, 26, 28 and 30 in the Motivation Scales and items 39, 45, 48, 50 to 52, 58, 62, 68, 74 to 75 and 78 in the Learning Strategy Scales.

The content of more than half the items in the MSLQ was deemed to be culturally appropriate for the multicultural target group. These were items 1, 5, 10 to 15, 17 to 23, 25, 28 and 29 in the Motivation Scales and items 33 to 35, 37 to 40, 45, 48, 50, 51, 54, 55, 57, 61, 64, 65, 68 and 71 to 80 in the Learning Strategy Scales.

The implication that can be drawn from the analysis of the data collected is that, with only 22 of the 81 items of the MSLQ being rated by all the reviewers as being language appropriate, and 46 of the 81 as culturally appropriate, there is a need to explore the adaptation of the remaining items in order to eliminate potential bias.

The next section covers the qualitative results, and where applicable, further exploration of the items is provided.

**Qualitative Results**

The previous section covered reviewers’ responses to the language and cultural appropriateness of the items in the MSLQ. Within Section 2 of the Bias Review Form reviewers were further encouraged to provide comments to justify their responses or
to give suggestions for the rewording of specific items. By using content analysis all the reviewers’ responses were collated and themes and sub-themes were identified.

Table 11 provides a detailed breakdown of the main themes and sub-themes that emerged from the qualitative data analysis.

Table 11
Themes and Sub-Themes Identified from the Qualitative Results

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>Sub-Themes</th>
</tr>
</thead>
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<tr>
<td>Language</td>
<td>Unfamiliar Terms</td>
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<tr>
<td></td>
<td>Educational Background</td>
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<td>Vague Items</td>
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<td>Consistency</td>
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<td>Grammar, Spelling, Sentence Structure and Punctuation</td>
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<td>Item Characteristics</td>
<td>Quantifying Loaded Terms</td>
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<td>Long Items</td>
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</tr>
<tr>
<td></td>
<td>Item Content</td>
</tr>
<tr>
<td></td>
<td>Benefits of MSLQ</td>
</tr>
<tr>
<td>Culture</td>
<td>Cross-cultural Relevance</td>
</tr>
</tbody>
</table>

It can be noted in Table 11 that the main themes, Language and Item Characteristics, presented with the majority of sub-themes when compared to Culture. The next section expands on the themes and sub-themes presented above.

**Theme 1: Language**

As discussed previously in Chapter Three, aspects such as reading and language difficulties also need to be carefully considered when focusing on the adaptation of group tests (Kanjee, 2001). For test-takers to be able to rate statements about their motivational orientation and learning strategies for a specific course, they have to read the test items on the MSLQ. Reading requires the ability to recognize words, know their meaning, read quickly and fluently and ultimately comprehend the intended meaning (Oakland & Lane, 2004). Qualities that are important to test-takers include
the ability to recognize and comprehend all the words and phrases used in the test items quickly and accurately (Oakland, 2004). In this context the term readability is used to refer to the ease with which the reader can read and understand text (Oakland & Lane, 2004).

Foxcroft et al. (2004) identified two levels on which language can be problematic, namely, the language of the test itself, and the language competence of the test-takers. These two levels are explored in the sub-themes below.

Sub-Theme 1: Unfamiliar Terms

The qualitative results for the Motivation and Learning Strategy Scales related to unfamiliar terms are presented in Table 12. Columns two and three present the identified problematic items and provides the actual terms that were considered to be problematic, challenging and unfamiliar. Examples of reviewers’ verbatim responses are also presented.

Table 12
Qualitative Results Related to Unfamiliar Terms

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Learning Strategy Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>2, 6, 7, 9, 14, 15, 16, 17, 19, 22, 26, 27, 29 and 30</td>
</tr>
<tr>
<td>Examples of Reviewers’ Verbatim Responses</td>
<td>“Unfamiliar terms especially for black students for whom English is a second language.”</td>
</tr>
<tr>
<td></td>
<td>“Students will guess its meaning and not ask – these are tricky terms.”</td>
</tr>
<tr>
<td></td>
<td>“These terms could be challenging especially for some black students.”</td>
</tr>
<tr>
<td></td>
<td>“Not sure if all culture groups (X, E, A) will be equally familiar with these terms.”</td>
</tr>
</tbody>
</table>
The reviewers also noted that the term “course” is frequently used in the MSLQ and it was pointed out that within a South African context “course” refers to the “overall degree”, and within this context a familiar term when referring to “one course” is a “module”. From Table 12 it can be noted that the expert reviewers found that the item content of a number of items in both scales was reflective of linguistic problems with specific respect to unfamiliarity, which they described as those terms that are not commonly used by all student groups in their everyday language.

Even though items 31, 43 and 54 were previously flagged in the quantitative results as linguistically problematic, the reviewers did not justify their responses within the qualitative section. Items 26 and 30 in the Motivation Scales and items 52, 58, 62, 74 and 78 in the Learning Strategy Scales were previously accepted as language appropriate in the quantitative results, however, within the qualitative results, a number of reviewers identified terms in them that were not equally familiar for all students from diverse language backgrounds.

Generally the qualitative results demonstrated that the expert reviewers found unfamiliar terms in each scale of the MSLQ, with the exception of the Peer Learning scale. Based on unfamiliar terms items 2, 7, 14, 16, 17, 19, 22, 26, 29, 38 and 52 were recommended for rewording, using simpler terms.

It was pointed out that whereas these unfamiliar terms might be easily understood by students whose home language is English, problems might be experienced by those who are second or third language speakers. The reviewers further indicated that the majority of students at the NMMU have heterogeneous African languages as their mother tongue.

It was also reported that these unfamiliar terms could often lead to confusion, with some of them having double meanings which could be easily misinterpreted, changing the entire context of the items. From their experience the reviewers reflected concern that some second language first-year students tended to be too shy or embarrassed to ask for clarification of the unfamiliar terms, or sometimes they tended not to answer the items, while others guessed an answer or lost interest when they did not know the
meaning of a term within an item. More specifically, the reviewers felt that Xhosa speaking test-takers and those from disadvantaged educational backgrounds would be at particular risk of potential bias with respect to the unfamiliar terms.

The English- and Afrikaans-speaking reviewers indicated that all the terms used on the MSLQ would be familiar to the language and cultural groups they were representative of, as the language used was fairly easy to understand. While the Afrikaans-speaking reviewers found the MSLQ “easy to understand”, they recommended the translation of the MSLQ into Afrikaans and Xhosa as an area for future research. Conversely, the Xhosa-speaking expert reviewers reported that there was no need for the MSLQ to be translated into Xhosa provided that the terms used were equally familiar to all groups of students.

Several reviewers across the heterogeneous group further recommended that the descriptions of the unfamiliar terms be made available in brackets after each item or on a separate page at the beginning of the questionnaire in order to provide clarity. Overall it was emphasized that in any review or adaptation of the MSLQ, the language needed to be kept simple and comprehensible to test-takers of all language groups.

Sub-Theme 2: Educational Background

The qualitative results relating to the educational background sub-theme are presented in Table 13.
It was previously reported in the quantitative results that item 74 was found to be linguistically appropriate, while items 2, 47 and 53 were problematic in this regard. In this sub-theme it can be noted that the items on both the sections are represented among those previously identified as potentially biased due to unfamiliar terms.

A concern raised by the expert reviewers was that, whereas the unfamiliar terms would be easily understood by White and Black Model C students, this might not be the case with all students, given the varying quality of educational backgrounds, and thus possibly place educationally disadvantaged students at a disadvantage when responding to items in the MSLQ. For example, a reviewer from the Xhosa-speaking group reported that she had learnt most of the “university jargon” (“unfamiliar terms”) during her first-year of tertiary studies after having matriculated from a disadvantaged urban school. This was in line with observations and experiences of the majority of reviewers with experience in working with first-year students. According to the reviewers, Black students specifically from rural and disadvantaged educational backgrounds would struggle the most with the unfamiliar terms, more so than students from other educational backgrounds and cultural groups.
Generally, it can be noted that the reviewers established a connection between the unfamiliar terms and educational background. Nonetheless, the researcher decided to record these as two separate sub-themes. In the “unfamiliar terms” sub-theme the focus was on terms that were unfamiliar for non-English first language speakers. In the “educational background” sub-theme the focus was on terms that were likely to be unfamiliar to students from rural and disadvantaged educational backgrounds.

**Sub-Theme 3: Vague Items**

The qualitative results relating to vague items are presented in Table 14.

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 12</td>
<td>I am confident I can learn the basic concepts taught in my course.</td>
<td>Item 41</td>
<td>When I become confused about something I am reading for a course, I go back and try to figure it out.</td>
</tr>
<tr>
<td></td>
<td>“Is this item about learning or language?”</td>
<td></td>
<td>“Be specific of where one should go back to.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Is it to the text, the lecturer or to the notes?”</td>
</tr>
<tr>
<td>Item 19</td>
<td>I have an uneasy, upset feeling when I write an exam.</td>
<td>Item 44</td>
<td>If course readings are difficult to understand, I change the way I read the material.</td>
</tr>
<tr>
<td></td>
<td>“What if a student experiences one of these feelings and not both?”</td>
<td></td>
<td>“Be specific of where the readings will be obtained from. Is it textbooks, class notes, etc?”</td>
</tr>
<tr>
<td>Item 20</td>
<td>I am confident I can do an excellent job on the assignments and tests in my course.</td>
<td>Item 45</td>
<td>I try to work with other students from my class to complete the course assignments.</td>
</tr>
<tr>
<td></td>
<td>“Is it about confidence or assignment writing skills?”</td>
<td></td>
<td>“Is this item referring to individual or group assignments, as all students receive both these?”</td>
</tr>
<tr>
<td>Item 31</td>
<td>Considering the difficulty of my course, the lecturer and my skills, I think I will do well in my course.</td>
<td>Item 55</td>
<td>I ask myself questions to make sure I understand the material I have been studying in the course.</td>
</tr>
<tr>
<td></td>
<td>“Does ‘difficulty’ refer to the lecturer and skills needed for the course as well or not?”</td>
<td></td>
<td>“When does one make the questions? Before a test or exam or just generally?”</td>
</tr>
<tr>
<td>Item 58</td>
<td>I ask the lecturer to clarify concepts I do not understand well.</td>
<td></td>
<td>“Give options so that students know they can ask the lecturer whether it is during class or right after class or in consultation times.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“It’s also important for students to be made aware of this opportunity as well.”</td>
</tr>
</tbody>
</table>
### Table 14 (Continued)

**Qualitative Results Related to Vague Items**

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 65</td>
<td>I have a regular place set aside for studying.</td>
<td>“Provide more qualities or an in-depth description of a good study place.” “For example: quiet place, no distractions, etc.”</td>
<td></td>
</tr>
<tr>
<td>Item 67</td>
<td>When I study for a course, I write brief summaries of main ideas from the readings and my class notes.</td>
<td>“Where will the notes be taken from: lectures, self, peers, etc?”</td>
<td></td>
</tr>
<tr>
<td>Item 75</td>
<td>I try to identify students in the course whom I can ask for help if necessary.</td>
<td>“Be more specific, as one can’t just ask any student to assist them, one needs to find students who are able to master the concepts of a course to assist them.”</td>
<td></td>
</tr>
<tr>
<td>Item 79</td>
<td>If I get confused taking notes in class, I make sure I sort it out afterwards.</td>
<td>“How they will sort it out (give options of asking lectures, peers, etc).”</td>
<td></td>
</tr>
</tbody>
</table>

Thirteen items from the MSLQ were found with content that was viewed as vague. The reviewers reflected that the content of items 45, 58 and 75 was vague, although, within the quantitative results, these items were found to be linguistically appropriate. In addition, it can be noted that the content in items 19, 44, 58 and 67 was previously found to have unfamiliar terms, which were reported as a potential source of bias.

In judging the reviewers’ responses it can be noted in Table 14 that two levels were used by them to judge an item as being vague. First, the reviewers found problems with the actual item content as it is noted in items 19, 31, 45 and 51. Secondly, it can be noted that some of the reviewers’ responses reflected aspects geared to a developmental focus with regard to student academic skills development, when there might have been nothing specifically wrong with the actual clarity of the items. This trend is noted in items 41, 44, 58, 65, 75 and 79 in the Learning Strategy.
Scales. It can also be noted that the reviewers’ judgments were generally reflective of their diverse educational and training backgrounds and work experience, either in test development and adaptation or in lecturing and academic skills development.

Generally the reviewers recommended that it would be essential to reduce vague items as they tended to confuse test-takers. A strategy that was recommended in this regard was to make these items more specific, however no suggestions were provided by them.

**Sub-Theme 4: Grammar, Spelling, Sentence Structure and Punctuation**

The expert reviewers explored problems related to poor grammar, spelling, sentence structure and punctuation. Table 15 depicts items which were identified to be in need of rewording owing to the poor grammar used.

Table 15

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Recommended Changes</th>
<th>Learning Strategy Scales</th>
<th>Recommended Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 3</td>
<td>“think that other students will do better than me.”</td>
<td>Item 33</td>
<td>“easily distracted”</td>
</tr>
<tr>
<td></td>
<td>When I write a test I think about how badly I am doing compared with other students.</td>
<td>During class time, I often miss important points because I am thinking of other things.</td>
<td></td>
</tr>
<tr>
<td>Item 4</td>
<td>“transfer”</td>
<td>Item 39</td>
<td>“more than once” or “a number of times”</td>
</tr>
<tr>
<td></td>
<td>I think I will be able to use what I learn in one course in other courses.</td>
<td>When I study, I practice saying the material to myself over and over.</td>
<td></td>
</tr>
<tr>
<td>Item 8</td>
<td>“in other sections”</td>
<td>Item 46</td>
<td>“no suggestion provided”</td>
</tr>
<tr>
<td></td>
<td>When I write a test I think about questions on other parts of the test I cannot answer.</td>
<td>When studying, I read my notes and course readings over and over again.</td>
<td></td>
</tr>
<tr>
<td>Item 13</td>
<td>“I wish I could” or “I hope to” or “I expect”</td>
<td>Item 42</td>
<td>“when studying”</td>
</tr>
<tr>
<td></td>
<td>If I can, I want to get better marks in my course than most of the other students.</td>
<td>When I study for a course, I go through the readings and my class notes and try to find the most important ideas.</td>
<td>“the work in my course”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Strategy Scales</th>
<th>Recommended Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 33</td>
<td>During class time, I often miss important points because I am thinking of other things.</td>
</tr>
<tr>
<td>Item 39</td>
<td>When I study, I practice saying the material to myself over and over.</td>
</tr>
<tr>
<td>Item 46</td>
<td>When studying, I read my notes and course readings over and over again.</td>
</tr>
</tbody>
</table>
Table 15 (Continued)
Qualitative Results Related to Poor Grammar

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Recommended Changes</th>
<th>Learning Strategy Scales</th>
<th>Recommended Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 19</td>
<td>“nervous” or “anxious” “feelings”</td>
<td>Item 53</td>
<td>“make use of” or “I use all the information gained”</td>
</tr>
<tr>
<td>I have an uneasy, upset feeling when I write an exam.</td>
<td></td>
<td></td>
<td>“activities” “no suggestion provided”</td>
</tr>
<tr>
<td>Item 59</td>
<td>I memorize key words to remind me of important concepts.</td>
<td></td>
<td>“myself”</td>
</tr>
<tr>
<td>Item 65</td>
<td>I have a regular place set aside for studying.</td>
<td></td>
<td>“specific”</td>
</tr>
<tr>
<td>Item 73</td>
<td>I attend class regularly.</td>
<td></td>
<td>“classes”</td>
</tr>
</tbody>
</table>

In Table 15 it can be noted that items 19, 46, 53 and 59 were previously identified as problematic in the sub-theme of unfamiliar terms. Item 53 was also found to be linguistically problematic in the quantitative evaluation, while item 39 was found to be language appropriate.

Reviewers reflected concern that some students might easily interpret the term “readings” in items 42, 46 and 53 as a spelling error, however, notably no suggestion for rewording was provided. This term was previously flagged as potentially problematic in the qualitative results focusing on unfamiliar terms.

In addition, it was recommended that where the American spelling was used, this should be substituted with the South African spelling. Examples are presented below.
Table 16

Qualitative Results Related to Spelling

<table>
<thead>
<tr>
<th>Learning Strategy Scales</th>
<th>American Spelling</th>
<th>South African Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 32</td>
<td>organize</td>
<td>“organise”</td>
</tr>
<tr>
<td>When I study the reading for a course, I make an outline of the material to help me organize my thoughts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 39</td>
<td>practice</td>
<td>“practise”</td>
</tr>
<tr>
<td>When I study, I practice saying the material to myself over and over.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 60</td>
<td>memorize</td>
<td>“memorise”</td>
</tr>
<tr>
<td>I memorize key words to remind me of important concepts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With some of the items (items 3, 15, 34, 38, 41, 42 and 79) the reviewers recommended that adding certain words (for example, “that”, “to”, “then”, “while”, “I am”, “to the text”) and deleting unnecessary words (for example, “If I can”, “then”, “for a course”, “very”) in items 6, 13, 15, 18, 35, 42, 74 and 77 were deemed necessary to enhance readability and comprehensibility. Adding words or phrases often leads to an increase in the item length whereas removing irrelevant material has the contrary effect (Thompson & Thurlow, 2002).

Problems with word choice, sentence structure and pronoun referents also make it difficult for test-takers to understand what is required of them. Table 17 presents items which were highlighted as those that needed to be restructured in order to enhance their fluency and comprehensibility, thus reducing unnecessary confusion and potential misunderstanding.
Table 17
Qualitative Results Regarding Items that Need to be Restructured

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Recommended Changes</th>
<th>Learning Strategy Scales</th>
<th>Recommended Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 7</td>
<td>Getting good marks in my course is the most satisfying thing for me right now.</td>
<td>Item 32 When I study the reading for a course, I make an outline of the material to help me organize my thoughts.</td>
<td>“When studying for a course I make an outline of the material to help me organize my thoughts.”</td>
</tr>
<tr>
<td>Item 8</td>
<td>When I write a test I think about questions on other parts of the test I cannot answer.</td>
<td>Item 36 When reading for a course, I make up questions to help focus my reading.</td>
<td>“When studying for a course I usually make up questions as I go along to help focus my reading.”</td>
</tr>
<tr>
<td>Item 9</td>
<td>It is my own fault if I do not learn the material in the course.</td>
<td>Item 39 When I study, I practice saying the material to myself over and over.</td>
<td>“I always revise my work before a test or exam.”</td>
</tr>
<tr>
<td>Item 23</td>
<td>I think the course material will be useful for me to learn.</td>
<td>“I think it would be useful for me to learn the course material.”</td>
<td></td>
</tr>
<tr>
<td>Item 27</td>
<td>Understanding the subject matter of my course is very important to me.</td>
<td>Item 44 If course readings are difficult to understand, I change the way I read the material.</td>
<td>“If I am struggling to understand the material in my course, I always change the way I read or study the material.”</td>
</tr>
<tr>
<td>Item 51</td>
<td>I treat the course material as a starting point and try to develop my own ideas about it.</td>
<td>“I don’t only stick to the course material; I always try to develop my own ideas about it.”</td>
<td></td>
</tr>
<tr>
<td>Item 55</td>
<td>I ask myself questions to make sure I understand the material I have been studying in the course.</td>
<td>“I make up my own questions for each chapter to make sure that I understand the material in that course.”</td>
<td></td>
</tr>
<tr>
<td>Item 56</td>
<td>I try to change the way I study in order to fit the course requirements and the lecturer’s teaching style.</td>
<td>“I use different study methods to fit my courses.”</td>
<td></td>
</tr>
<tr>
<td>Item 62</td>
<td>I try to relate ideas in a course to those in other courses whenever possible.</td>
<td>“Whenever possible I try to relate ideas in a course to those in other courses.”</td>
<td></td>
</tr>
</tbody>
</table>
It was felt that items 3, 8, 38, 39, 44, 55, 56, 62, 65 and 77 needed to be simplified to improve the readability of these test items for all test-takers. It was previously mentioned that in this context the term readability is used to refer to the ease with which the test-takers can read and understand text (Oakland & Lane, 2004). The readability of test items is enhanced through careful consideration of word choice, the clarity and density of ideas, and the complexity of sentence structure (Oakland & Lane, 2004).

In concluding this section, punctuation, especially regarding a lack of commas was identified as problematic in items 3, 14 and 40. It was felt that it could be potentially confusing to test-takers when ideas were not made adequately distinct. A comma is a punctuation mark used to show a pause or to separate items in a list or elements within the grammatic structure of a sentence (Hawkins, 1995). Using appropriate punctuation is one of the strategies used for editing text to produce plain language (Brown, 1999). The next section covers Consistency as the last sub-theme under the main theme of Language.

**Sub-Theme 5: Consistency**

In this context the reviewers’ responses reflected that consistency referred to keeping to a regular pattern of terminology in order to avoid unnecessary confusion.
<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
</table>
| **Item 6**
I am certain I can understand the most difficult *material* presented in the readings for a course. | "Not sure whether ‘material’ or ‘content’ should be used.” | **Item 36**
When reading for a course, I make up questions to help focus my reading. | "‘Reading’ or ‘studying’? Studying is commonly used and familiar across all cultural groups.” |
| **Item 17**
I am very interested in the *content area* of this course. | "‘Content area’ can be confusing, potentially problematic.”]  
"Will you have definitions at the beginning of this questionnaire?"  
"Be consistent- it’s important for these unfamiliar terms.”  
"Is it ‘content area’ or ‘subject matter’ or ‘course material’?"  
"Why not use a commonly used term and stick to it.”  
"‘Content area’ can be an unfamiliar term for students coming from poor educational backgrounds.”  
"What is meant by ‘content area’ why not just ‘content’?” | | |
Table 18 (Continued)
Qualitative Results Related to Consistency

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 26</strong></td>
<td>I like the subject matter of the course I have chosen.</td>
<td><strong>Subject matter’ will confuse 2nd language speakers, unfamiliar term.”</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Item 27</strong></td>
<td>Understanding the subject matter of my course is very important to me.</td>
<td><strong>“Does ‘subject matter’ refer to ‘content area’ or ‘course material’?”</strong></td>
<td><strong>“Be consistent.”</strong></td>
</tr>
<tr>
<td></td>
<td><strong>“Good item but ‘subject matter’ is an unfamiliar term that might cause potential misinterpretation of the item.”</strong></td>
<td><strong>“You’ve also used ‘content area’, ‘course material’: is the difference between the two?”</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>“‘Subject matter’ is not commonly used by all students.”</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Items 6, 17, 26 and 27 in the Motivation Scales were previously flagged in the qualitative results as linguistically problematic due to unfamiliar terms. From Table 18 it can be noted that the reviewers expressed concern regarding the unfamiliar terms and their possible effect on the entire item. With these items the reviewers questioned whether there is a difference between “subject matter”, “course material” and “content area” and between “material” and “content”.
The expert reviewers emphasised that consistency in the meaning of terms used, needs to be considered especially with the unfamiliar terms used within the MSLQ, as this would help to enhance test-takers understanding of the items and thus reduce as far as possible the element of potential bias. In addition it was reported that the selection of relevant and commonly used terms to accommodate students from all backgrounds is essential to ensure that all students obtain similar benefits from the testing process. The next section covers the second theme of Item Characteristics.

**Theme 2: Item Characteristics**

The three types of bias were previously discussed in Chapter Three. Qualities of good items, and the strategies for editing text when focusing on the adaptation of group tests to produce plain language, were discussed. In the present study, within the theme Item Characteristics, seven sub-themes were identified and explored.

The first four sub-themes, namely, quantifying loaded terms, long items, too many ideas at once, and repetition, focus on aspects of the items that the reviewers felt needed to be changed within the MSLQ in order enhance test-takers understanding of the items, and thus reduce the potential for bias. The last three sub-themes, namely, relevant items, item content, and the benefits of the MLSQ, focus on aspects of the items that were perceived positively by the expert reviewers. These are discussed in the section below.

**Sub-Theme 1: Quantifying Loaded Terms**

Table 19 presents the terms on the MSLQ which were described by expert reviewers as “loaded”. The reviewers felt that test-takers would interpret the “loaded” terms subjectively, based on their individual educational backgrounds and experiences.
Table 19

Qualitative Results Related to Loaded Terms

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2 If I study in <em>appropriate</em> ways, then I will be able to learn the material in my course</td>
<td>“Quantify ‘appropriate’, use examples to elaborate on what these ‘appropriate ways’ are.” “All will have different versions of appropriate ways.”</td>
<td>Item 34 When studying for a course, I often try to explain the material to a classmate or friend.</td>
<td>“Consider using percentages to indicate what ‘often’ means.”</td>
</tr>
<tr>
<td>Item 5 I believe I will receive an <em>excellent mark</em> in my course.</td>
<td>“Use categories e.g. percentages to classify what ‘excellent’ is.” “‘Excellent’ is a loaded term -maybe use the word ‘good’.” “Also quantify ‘excellent’: for example an excellent mark = 75% up).”</td>
<td>Item 73 I attend class regularly.</td>
<td>“‘Regularly’ -must be quantified (e.g. 3 out of 4 lectures).” “Some lectures do not have classes every week such as block release.”</td>
</tr>
<tr>
<td>Item 7 Getting good <em>marks</em> in my course is the most satisfying thing for me right now.</td>
<td>“Be more specific on what a ‘good mark’ is.” “People have different standards, for one person a good mark is 50% for another it might be 80%, etc.”</td>
<td>Item 77 I often find that I do not spend very much time on a course because of other activities.</td>
<td>“Consider using percentages to indicate what ‘often’ means.”</td>
</tr>
<tr>
<td>Item 20 I am confident I can do an <em>excellent</em> job on the assignments and tests in my course.</td>
<td>“‘Excellent’ is a familiar term but people give it different personal meaning.” “Loaded terminology- maybe use ‘good job’ rather than ‘excellent’.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Item 2 was previously flagged in the qualitative results due to an unfamiliar term, whereas, the majority of the terms in the other items in Table 19, have been recognized by the expert reviewers as cross-culturally familiar terms which need to be quantified. The reviewers expressed concern that for the identified loaded terms, students often have their own different sets of standards, values and experiences, and thus might attach different meanings to these terms. For example, it was proposed that for one student “excellent” in his or her educational context might be 60%, while for another student it could be interpreted as 89% and above. It was therefore recommended that “excellent” could be graded from a mark of 75% and above. Another example was item 73 where reviewers reported that one could use frequencies (for example, “three out of four lectures”) and even percentages for terms such as “regularly” or “often”. It was thus recommended that clearer guidelines are essential for these terms to ensure overall consistency and to promote improved understanding of the items.

**Sub-Theme 2: Long Items**

The content of the items presented in Table 20 was reported by reviewers to be overly lengthy and thus potentially confusing for some students.

**Table 20**

*Qualitative Results Related to Long Items*

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 13. If I can, I want to get better marks in my course than most of the other students.</td>
<td>&quot;Simplify this sentence; it is long, start by deleting 'if I can'.&quot; &quot;Remove 'If I can'- to simplify the long sentence.&quot;</td>
<td>Item 53 When I study for a course, I pull together information from different sources, such as lectures, readings and discussions.</td>
<td>&quot;Long sentence, reduce by cutting out 'for a course'.&quot;</td>
</tr>
<tr>
<td>Item 31. Considering the difficulty of my course, the lecturer and my skill, I think I will do well in my course.</td>
<td>&quot;Long item - consider splitting this item into 3 items - it’s too long and ambiguous.&quot;</td>
<td>Item 54 Before I study new course material thoroughly, I often read it through quickly to see how it is organized.</td>
<td>&quot;Simplify or reword – it’s long winded.&quot; &quot;Reduce unnecessary terms, long item.&quot;</td>
</tr>
</tbody>
</table>
Table 20 (Continued)

Qualitative Results Related to Long Items

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Item 61</td>
<td>I try to think through a</td>
<td>‘Long item, consider simplifying.’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>topic to decide what I</td>
<td>‘Rather a long item - simplify it.’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>am supposed to learn</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from it rather than just</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>reading it over when</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>studying for a course.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 69</td>
<td>I try to understand the</td>
<td>‘Long sentence- consider rewording to shorten it.’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>material in a course by</td>
<td>‘Confusing item, as too many things are addressed at once.’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>making connections</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>between the readings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and the concepts from the</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lectures.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 81</td>
<td>I try to apply ideas</td>
<td>‘Long item.’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from course readings in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>other class activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>such as lectures and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>discussions.</td>
<td></td>
</tr>
</tbody>
</table>

From Table 20 the reviewers’ suggestions in dealing with long items ranged from simplifying the item, reducing unnecessary terms and rewording the entire item, shortening it. It was mentioned in Chapter Three that long, complex sentences take up more of the test-takers’ time and make it difficult for some of them to understand what is required.

**Sub-Theme 3: Too Many Ideas at Once**

Table 21 presents the items that the reviewers experienced as having covered too many ideas at once.
Table 21

Qualitative Results Related to Too Many Ideas at Once

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Reviewers’ Verbatim Responses</th>
<th>Learning Strategy Scales</th>
<th>Reviewers’ Verbatim Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 1</strong></td>
<td>In a course, I prefer course material that really challenges me so I can learn new things.</td>
<td>Item 37</td>
<td>I often feel so lazy or bored when I study that I quit before I finish what I planned to do.</td>
</tr>
<tr>
<td></td>
<td>“This item is asking 2 things - simplify.”</td>
<td>Item 67</td>
<td>“Two ideas (lazy, bored), but it’s an appropriate question.”</td>
</tr>
<tr>
<td><strong>Item 31</strong></td>
<td>Considering the difficulty of my course, the lecturer and my skill, I think I will do well in my course.</td>
<td>Item 69</td>
<td>“Confusing item, too many things are addressed in one.”</td>
</tr>
<tr>
<td></td>
<td>“Consider splitting this item into 3 items - it is too long and ambiguous.”</td>
<td>Item 70</td>
<td>“Two ideas - should be split into 2 questions.”</td>
</tr>
<tr>
<td></td>
<td>Item 72 I make lists of important concepts for a course and memorise the lists.</td>
<td>“Complex item which should be split into two, what if the respondents answer yes to one and no to the other?”</td>
<td></td>
</tr>
</tbody>
</table>

The expert reviewers described a simple question as one that covered one idea at a time. They indicated that a common problem that occurred with items with too many ideas was that a test-taker could answer “yes” to one of the ideas and have a different answer to the second idea, making it difficult to provide an accurate answer to the question as a whole. They cautioned that when too many ideas were addressed at once, items became potentially complicated and confusing. In these instances it was recommended that items should either be simplified or the ideas should be split into two different questions, which would help ensure that the majority of the items had one construct per question. This is in line with recommendations previously discussed.
in Chapter Three where considerations of reliability require that each item in a test relates to only one concept or idea to ensure that its meaning is not ambiguous.

**Sub-Theme 4: Repetition**

Table 22 presents the items that the reviewers experienced to be repetitive and similar.

Table 22

**Qualitative Results Related to Repetition**

<table>
<thead>
<tr>
<th>Motivation Scales</th>
<th>Similar To Item</th>
<th>Learning Strategy Scales</th>
<th>Similar To Item</th>
</tr>
</thead>
</table>
| Item 12
I am confident I can learn the basic concepts taught in my course. | Item 6
I am certain I can understand the most difficult material presented in the readings for a course. | Item 47
When a theory, interpretation or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence. | Item 38
I often find myself questioning things I hear or read in a course to decide if I find them convincing. |
| Item 15
I am confident I can understand the most complex material presented by the lecturer in a course. | Item 6
I am certain I can understand the most difficult material presented in the readings for a course. | Item 64
When reading for a course, I try to relate the material to what I already know. | Item 62
I try to relate ideas in a course to those in other courses whenever possible. |
| Item 28
I feel my heart beating fast when I write an exam. | Item 19
I have an uneasy, upset feeling when I write an exam | Item 66
I try to play around with ideas of my own related to what I am learning in a course. | Item 64
When reading for a course, I try to relate the material to what I already know. |

When analyzing the reviewers’ responses it was noted that the majority of the identified similar and repetitive items are to be found within the same scale. The exception was found with item 66 which was reported to be a repetition of item 64, as, although both are found within the Cognitive and Metacognitive Strategies component of the MSLQ, the former belongs to the Critical Thinking scale, and the latter to the Elaboration scale. In such cases of repetition one of the reviewers recommended that “new items which tapped the new constructs or literature on motivation and learning in a South African context should possibly be considered”. However, the reviewer did not provide further suggestions regarding examples of such constructs or give details pertaining to literature to be reviewed.
It should be noted that for the purpose of the Bias Review Form the items of the MSLQ were presented in their original format, and not according to their scales, with 31 items in the Motivation Section and 50 items in the Learning Strategy Section. One of the principal arguments for integrating items of the scales is that if all were presented together, the respondents might look at the pattern of questions or might try to guess what is being measured and answer accordingly (Fowler, 1988). Another possible advantage of mixing items is that the added variety may make the questionnaire less boring for the test-takers and motivate them to complete it (Folwer, 1988).

The recommendations made by the expert reviewers with regard to dealing with long and loaded items, and those containing more than one idea, were in accordance with the item-writing guidelines which were addressed in Chapter Three. The last section highlights the positive sub-themes under this section.

**Sub-Theme 5: Relevant Items**

According to the expert reviewers, items 5, 8, 10 to 12, 15, 17 to 21 and 28 on the Motivation Scales, and items 33 to 35, 38 to 40, 46, 49, 55, 57 to 60, 62, 65 to 68, 70, 71, 73, 76, 79 and 81 on the Learning Strategy Scales were viewed as representative of content that is interesting, relevant and applicable for use with students from any course.

**Sub-Theme 6: Item Content**

The reviewers also identified a number of items which provided them with a positive representation of the constructs being assessed. These were items 1, 5, 8, 12, 19, 21 and 30 on the Motivation Scales, and items 34, 38, 46, 59, 68, 71 to 73 and 77 on the Learning Strategy Scales. In some of their comments the reviewers added that these items were interesting, appropriate and relevant for all groups of students regardless of their course of study.
Particular attention was given to the Help Seeking scale, as the reviewers felt that emphasis should be placed on encouraging students to approach their lecturers when they had tried and still continued to experience problems in understanding the course content. In this regard the reviewers raised the issue that the relevant academic support resources used in the higher education context, for example, Supplemental Instruction (SI) leaders and senior students in the same course, should also be referred to within the measure.

**Sub-Theme 7: Benefits of the MSLQ**

The MSLQ was described by some of the expert reviewers as a relevant questionnaire for any course and one that should possibly be administered in the middle of the first term as the delivery of early feedback and subsequent remediation may result in students persisting in the course. Another advantage highlighted by the Black Xhosa-speaking reviewers was that the questionnaire could be helpful for both the lecturing staff in terms of developing programmes or workshops to assist their students, and for students, giving them concrete indications of where their strengths were for a particular course and their areas of growth. The reviewers further emphasised that most of the time students learned a variety of positive behaviours that could help them in their academic lives from such questionnaires.

These sub-themes have highlighted the importance of the nature of the content of such measures being relevant to the purpose of the measure and constructs being assessed. The next section covers Culture as a main theme.

**Theme 3: Culture**

Chapter Three emphasized that the content of any measure reflects the nature of the society in which it is developed and used (Claassen, 1995). The MSLQ, as a non-cognitive instrument developed in the United States of America, and being used in South Africa, should meet the requirement of cultural appropriateness as far as possible. Research indicating that White and English first-language South Africans are, in general, mostly familiar with the language and culture of predominantly
Westernised psychological instruments (Aston, 2005; McSorley, 2004; Riordan, 2002), was, to some extent, also found in the present study in that both the White Afrikaans- and English-speaking reviewers, and those from the Coloured group, reported that the MSLQ was language and culturally appropriate for students from their backgrounds. In addition, the quantitative data presented previously indicated that a greater number of items were found by the reviewers to be culturally appropriate as opposed to language appropriate.

On analyzing the qualitative data gathered from the expert reviewers the researcher found it most difficult to separate cultural and language issues. This appears to be generally the case in South Africa, however, where language and culture are interrelated (Ardilla, 1995; Nell, 1999).

It was of interest to note that the reviewers flagged three items as culturally inappropriate in the quantitative results, whereas they did not provide any supporting responses in the qualitative section. These were items 4 and 26 on the Motivation Section and item 47 on the Learning Strategy Section. The following sub-theme emerged from the qualitative analysis.

**Sub-Theme 1: Cross-Culturally Relevant Terms**

The use of commonly understood terms across the diverse cultural groups was strongly emphasized as the reviewers felt that this would ensure that all test-takers would then be equally familiar with the item content. Table 23 presents the reviewers’ recommendations regarding unfamiliar terms.
Table 23
Qualitative Result for Cross-Culturally Unfamiliar Terms

<table>
<thead>
<tr>
<th>Motivation Scale</th>
<th>Recommended Changes</th>
<th>Learning Strategy Scale</th>
<th>Recommended Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2</td>
<td>If I study in appropriate ways, then I will be able to learn the material in my course.</td>
<td>“work”</td>
<td>Item 32</td>
</tr>
<tr>
<td>Item 7</td>
<td>Getting good marks in my course is the most satisfying thing for me right now.</td>
<td>“an important goal”</td>
<td>Item 44</td>
</tr>
<tr>
<td>Item 11</td>
<td>The most important thing for me right now is to pass my course.</td>
<td>“my main priority”</td>
<td>Item 52</td>
</tr>
<tr>
<td>Item 15</td>
<td>I am confident I can understand the most complex material presented by the lecturer in a course.</td>
<td>“most difficult”</td>
<td>Item 64</td>
</tr>
<tr>
<td>Item 19</td>
<td>I have an uneasy, upset feeling when I write an exam.</td>
<td>“nervous” “anxious”</td>
<td>Item 74</td>
</tr>
<tr>
<td>Item 22</td>
<td>The most satisfying thing for me in a course is trying to understand the content as thoroughly as possible.</td>
<td>“important”</td>
<td>Item 30</td>
</tr>
</tbody>
</table>

The majority of terms presented in Table 23 were previously flagged as unfamiliar. In addition, positive acceptance was received for commonly used terms that are already within the MSLQ. These terms are “studying”, “excellent”, boring” and “nervous”. Furthermore the reviewers felt that the items on the MSLQ were not disrespectful towards the various cultural groups comprising the intended test-takers.
The next section provides an overall summary of the results obtained in the present study.

**Overall Summary**

Data gathered from the 13 expert reviewers regarding the applicability of the MSLQ for use across diverse language and cultural higher education student groups, was first analysed quantitatively, and then qualitatively in order to further explore the results.

The quantitative analysis of the data revealed that 17 items across the two sections of the 81 itemed MSLQ were found by all the reviewers to be both language and culturally appropriate. In terms of language appropriateness specifically, 22 items were accepted as appropriate, while nine items were flagged as problematic in this regard. It was interesting to note that even though some items were deemed to be linguistically appropriate in the quantitative data, this was not reflected in a qualitative analysis of the reviewers’ responses. Considerably more items (46 of the 81) were rated by the reviewers as culturally appropriate.

From a qualitative analysis of the data, issues that the reviewers felt could compromise the target populations’ ability to understand and therefore respond to the items, were organized into three main themes, namely, language, item characteristics and culture.

One such issue concerned items they thought were most likely to be familiar only to students for whom English is a first language, and those who had access to good quality educational opportunities. In addition, there was concern about item vagueness, poor grammar, punctuation and sentence structure, and lack of consistency with regard to the unfamiliar terms used. Such issues were considered as potentially compromising the language appropriateness of the items in this instrument.
The qualitative analysis of the data further revealed that the expert reviewers were concerned about the negative impact that item characteristics such as loaded terms, long items, too many ideas at once, and repetition, would have on all prospective test-takers regardless of their language, cultural and educational backgrounds.

Reviewers expressed approval of terms within the MSLQ which are already cross-culturally relevant and further raised the importance of using terms commonly used across the target groups to ensure that all students would be equally familiar with the item content and could benefit from the measure.

The reviewers highlighted items in both the Motivation and Learning Strategy sections that they saw as relevant, interesting and applicable for all students in any course, and which positively represented the constructs being assessed.

Finally, the reviewers were of the opinion that this non-cognitive instrument would be most beneficial for use with students, as well as the academic staff, developmentally, by using the assessment results to identify aspects in need of development and thus enhance motivation and learning strategies.

**Discussion**

The current study involved an investigation of the MSLQ, a measure developed in the United States of America, with specific regard to its language and cultural appropriateness within a South African context. The importance of exploring the potential influence of the above-mentioned two variables becomes apparent when reviewing the historical influences and current developments in South Africa.

South Africa is a country with 11 official languages, and with fewer than ten percent of its population speaking English as a first language (Statistics SA, 2006). For many learners in the South African education system, English is learnt as a second or third language, even though it is meant to be the language of learning and teaching in the majority of classrooms and schools (Nel, 2005). In addition, those from rural areas often experience limited exposure to English outside the classroom and thus their opportunities to learn the language are extremely limited (Heugh, 2000;
Maliwa, 2005; Mbatha, 2005). This situation is further exacerbated by historical and current inequalities in the standard of educational provision, placing many learners at a disadvantage (Dawes et al., 1999). Thus, learners who have come through such a disadvantaged school system, and who have attained a Grade 12 qualification, often may not have the same knowledge base or skills as learners with the same qualification but who have received a higher standard of education (Foxcroft & Roodt, 2001).

Higher Education institutions have thus had to revise their policies to accommodate rapidly changing student demographics. More specifically, and of relevance to the present study, is the significantly increased number of English Second Language learners, and those who are the products of a disadvantaged schooling, applying for admission to higher education institutions (Fullard et al., 1999; Riordan, 2002; Seymour, 2002).

The literature reviewed in Chapter Three demonstrated that when it came to assessment in higher education and employment sectors, in practice, commonly used tests were usually not available in all the languages spoken in a multilingual country like South Africa, and test-takers were often assessed in their second or third language (Foxcroft & Roodt, 2001). The language used in an assessment measure may, thus, discriminate against test-takers in terms of their language proficiency rather than in terms of the psychological constructs being assessed (Foxcroft et al., 2004). It is therefore imperative that when developing or adapting assessment measures, the language background and the level of language proficiency of prospective test-takers be taken into account. It is against this background that the findings of this study should be contextualized.

An analysis of the quantitative data revealed that the majority of the items in the Motivation and Learning Strategy sections required some form of language adaptation in order to ensure, as far as possible, their appropriateness for the diverse target populations. A qualitative analysis of the expert reviewers’ responses revealed themes, and various related sub-themes, indicating more specifically the manner in which such a language adaptation could proceed.
The issue of the extent to which test-takers from the target populations would be familiar with terms used in specific items of the MSLQ was related by some of the expert reviewers to the quality of education received. Whereas those reviewers representing the English and Afrikaans First Language target groups felt that prospective test-takers from these groups would probably be familiar with all the terms used in the MSLQ, those representing the Black Xhosa-speaking target group expressed the view that Black students with limited access to quality educational opportunities would probably not be familiar with a number of the terms.

The negative impact that item characteristics such as loaded terms, long items, too many ideas at once, and repetition would have on all test-takers regardless of their language, cultural and educational backgrounds was recognized. The recommendations made by the expert reviewers with regard to dealing with long, vague, loaded items are in accordance with the item-writing guidelines which were addressed in Chapter Three.

In the present study the expert reviewers further identified relevant items representative of content that is interesting and applicable for all students in any course, and item content which positively represented the constructs being assessed. The potential benefits in using the MSLQ to identify and develop students’ motivation and learning strategies were also highlighted.

The cultural appropriateness of the MSLQ was evaluated within the context of relevant international guidelines for test adaptation which were covered in Chapter Three. These guidelines emphasize that a measure which is considered to be free of cultural bias will be comprised of items that are equally familiar to all cultural groups and will not be advantageous to the test performance of one group over another (Hambleton & Patsula, 2005).

Chapter Two provided an overview of the South African reviews on the MSLQ. These focused on the predictive validity, reliability and construct validity of this non-cognitive instrument when used with undergraduate higher education students at the NMMU. While McSorley (2004) found limited support for construct validity, her results confirmed adequate reliability for the Motivation and Learning Strategy scales
of the MSLQ, and a number of problematic items were also identified for the total sample. The next section focuses on these problematic items.

McSorley (2004) found nine items on the Motivation Scales and five items on the Learning Strategy Scales that fell below the recommended minimum item-total correlation, which is .20. These were items 2 to 4, 8 to 11, 14, 19, 39 to 40, 57, 73 and 80. Generally, item-total correlations below .20 are an indication of very difficult items which need to be reviewed for possible confusing language and targeted for revision (Garrett, Alman, Gardner, & Born, 2006).

When considering the problematic items identified by McSorley (2004), the majority of them were also identified as being problematic in the present study. Items 2 to 4, 8 to 9, 14, 19, 39, 73 and 80 were found in the quantitative and qualitative results to be potentially problematic either on a language or cultural perspective for the target group. The findings of the present study thus support those of McSorley (2004) and the items identified in both studies as being in need of revision should be tackled first when the MSLQ is adapted for use in South Africa.

**Chapter Summary**

This chapter presented a quantitative and qualitative analysis of the results obtained from the responses of the expert reviewers to the Bias Review Form. Themes and sub-themes relating to the language and cultural appropriateness of the items of the MSLQ were identified and discussed. In Chapter Six, the conclusions and limitations of this study are presented and discussed, and recommendations for future research are made.
CHAPTER SIX
CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Introduction

This chapter aims to summarise the main conclusions of this study. The limitations of the study will also be outlined, and finally recommendations for future research will be suggested.

The present study aimed to explore the applicability of the MSLQ with respect to aspects related to bias in a South African context. This was facilitated through assessing the item content with specific reference to language and cultural appropriateness. This type of investigation is deemed necessary in a country like South Africa, given that the increasing multicultural diversity of higher education students necessitates research into, and the promotion of, fair assessment practices.

A quantitative and qualitative methodology was employed to address the above aim. Participants chosen to act as expert reviewers completed the Bias Review Form in which they had to judge the 81-itemed MSLQ on its language and cultural appropriateness, based on their expertise and experience in working with first-year higher education students.

Research Findings and Conclusions

Based on the expert reviewers comments and suggestions in the qualitative data analysis, three main themes relating to potential bias were identified, namely, language, culture and item characteristics. The following section provides a summary of the quantitative and qualitative results.
Language Appropriateness

1. Quantitatively, twenty two items of the MSLQ were accepted as language appropriate, while nine items were flagged as problematic in this regard. It was generally interesting to note that even though some items were deemed to be linguistically appropriate in the quantitative data, they were identified as containing unfamiliar terms in the qualitative data analysis.

2. Qualitatively, the expert reviewers expressed concern that the unfamiliar terms found in the majority of the MSLQ scales would be potentially biased against test-takers assessed in their second or third language, and black test-takers with limited access to quality educational opportunities. Even though unfamiliar terms were recognized as relevant within the high school educational curriculum, it was emphasized that the varying educational standard in the South African context is a factor that needs to be taken into consideration.

3. In addition, concern was raised about the impact of vague item content, problems with grammar, sentence structure and punctuation, and a lack of consistency especially with regard to unfamiliar terms. Various suggestions were made by the reviewers in an attempt to improve these items.

Cultural Appropriateness

1. Quantitatively, 46 of the 81 items of the MSLQ were rated by all the reviewers as being culturally appropriate, while three items were flagged as problematic in this regard. It can be noted that cultural appropriateness was considered to be less problematic when compared to the results for language appropriateness.

2. Qualitatively, the expert reviewers expressed concern that the problematic terms with respect to unfamiliarity would be most understandable to
test-takers from the Western cultural group and tend to disadvantage those from African and educationally disadvantaged backgrounds.

3. The importance of having terms that were equally familiar across cultures and language groups was strongly emphasized, while the value of appropriate existing cross-cultural terms on the MSLQ was also positively affirmed.

4. In addition, the item content of the MSLQ was not found to contain any information that is considered as offensive against any cultural groups and for the intended test-takers.

**Item Characteristics**

1. Item characteristics such as loaded terms, long items, item content which covered more than one idea, and items with repetitive themes, were perceived as possible elements of potential bias.

2. In this regard the expert reviewers’ suggestions included quantifying terms, simplifying or splitting the ideas into two different questions and reducing unnecessary vocabulary, in order to make the MSLQ items specific and simple to comprehend.

3. Items recognized as relevant, interesting and applicable for all students in any course, and which positively represented the constructs being assessed, and those with simple language, received positive acceptance from the expert reviewers. This was consistent with key guidelines of good item writing.

4. Additionally, the potential benefits of the MSLQ from an academic staff and student perspective, and particularly from a developmental viewpoint were highlighted, thus confirming the educational applicability of this non-cognitive instrument.

The next section covers the major strengths of this study.

**Strengths of the Study**

1. The sample obtained was reflective of the dominant language and cultural groups within the Eastern Cape Province and of the NMMU student body.
2. The major strength of this study lies in its qualitative nature as previous studies on the MSLQ focused on quantitative methodologies. The use of a qualitative approach is in alignment with the suggestions and recommendations found in the literature reviewed for future directions in research on test adaptation.

3. The diverse and pertinent experience of the expert reviewers in the fields of academic lecturing, student development, and test development and adaptation, resulted in valuable suggestions for the adaptation and improvement of the items of the MSLQ.

4. In addition, the heterogeneous nature of the participants in terms of their educational, occupational and work experience was considered as a strength as this provided an opportunity for divergent individual opinions and collective thoughts.

5. Furthermore the expert reviewers informed research into the MSLQ about the language, cultural aspects and item characteristics that could compromise the target populations’ ability to understand and respond to the items. These form a source of potential bias towards certain groups of test-takers.

6. The findings of this study can thus be used as guidelines in the adaptation and revision of the items of the MSLQ.

The next section covers the limitations of this study.

**Limitations of the Study**

It must be borne in mind that any interpretation of the results of this study must be made in conjunction with a consideration of the following limitations:

1. This study focused on ensuring that participants were reflective of the Xhosa, English and Afrikaans language groups and no generalization can be made to other cultural and language groups.

2. Further limiting generalizability was the small number of participants. However, the literature reviewed outlines that with the nature of qualitative research small sample size and limited generalizability are inherent limitations.
3. When considering the sample, it must be noted that the lack of equal gender, language and cultural distribution was another shortcoming of the study. It would have been ideal to have participant groups that were equal in proportion in terms of the above aspects, so as to report on and compare observed differences.

4. Another limitation of this study is linked to the actual mode of data collection. The Bias Review Form was short and uncomplicated to complete, however from the identified problematic terms across all of the scales it was often not clear from the expert reviewers whether the terms were culturally or language inappropriate, or both. In other instances no qualitative data was provided to supplement the quantitative judgments.

In spite of the limitations above, the researcher remains of the opinion that this study has proved to be of value, contributing to the existing knowledge base of the MSLQ. Future research in this field should accommodate the limitations and recommendations of this study where applicable. The next section addresses such recommendations.

**Recommendations**

1. Future research should focus on defining the validity of constructs measured by the MSLQ for a multicultural South Africa population. This would provide a knowledge base and give an indication of whether adequate construct coverage is addressed, and it would promote the development of an effective means for assessing other constructs relevant within these specific cultural groups. As the Bias Review Form used in this study focused specifically on aspects related to bias through assessing the item content with specific reference to language and cultural appropriateness, future investigation into construct and method bias are equally relevant.

2. The items identified as being problematic in this study and that of McSorley's (2004) should be rewritten or replaced. The reviewers in the present study provided useful suggestions regarding how some of the items could be reworded. These suggestions should be considered for the revision studies. Once problematic items have been reworded or replaced, they should be
reviewed by experts and administered to a small sample of the target population. Once researchers are satisfied that the items are sound, the adapted MSLQ should be administered to a large sample of South African higher education students. The purpose of such a step would be to establish the validity and reliability of the adapted MSLQ in South Africa.

3. Once the validity and reliability of the adapted MSLQ has been established, its efficacy as part of an admissions test battery and as a predictor of academic performance should be researched. If the adapted MSLQ is found to have predictive validity with respect to academic performance, ways in which these results can be used to identify and develop at risk-students at higher education institutions should be explored.

From the above, it becomes apparent that the MSLQ first needs to be adapted before it can be used with confidence in South Africa.

**Chapter Summary**

The present study aimed to explore the applicability of the MSLQ with respect to aspects related to bias, through assessing the item content with specific reference to language and cultural appropriateness. Item content that is language, culturally or concurrently language and culturally appropriate has been identified, as well as problematic items that need to be rewritten to remove any language or cultural bias. Areas of concern were highlighted and reported in this study making it accessible for future research in this field. Future research into the adaptation of the MSLQ for use with diverse cultural and language groups in the South African context is needed both with groups of participants from higher education and those from secondary education. Given the changes that may be made, the MSLQ can be described as an instrument that could be adapted to suit a multicultural and multilingual university sample. Once the MSLQ has been adapted, it should be administered to a representative sample of South African higher education students to establish the psychometric properties of the adapted MSLQ.
REFERENCES


Professional Board for Psychology. (2002). *Ethical code for professional conduct.* Pretoria: Health Professions Council of South Africa (HPCSA), South Africa.


Learners. Paper presented at the Conference of the European Association for Institutional Research, University of Limerick, Limerick.


APPENDIX: A

LETTER TO THE EXPERT REVIEWERS

Dear ____________

The Admissions and Placement Assessment Programme (APAP) is currently conducting a research project, which involves exploring the appropriateness of the Motivated Strategies for learning Questionnaire (MSLQ) for a South African context. The MSLQ is a non cognitive measure that takes a more detailed view of the motivational process involved in self regulated learning and it contextualizes motivation and learning strategies by assessing them at a course level (Kivinen, 2000). Research studies confirm that information gained from the assessment with the MSLQ can be valuable in guiding at risk student to success. The MSLQ requires about 40 minutes to administer and can sensitise students and faculty to their learning strategies and motivation (Donn, 1989). Pintrich and his colleagues confirmed that the MSLQ has adequate reliability and validity when used with learners in the United States of America (USA) (Pintrich & Smith, 1993).

Literature reviews emphasize that the appropriateness of a measure developed in another country for the South African multicultural and multilingual society cannot be assumer without extensive investigation (Foxcroft & Roodt, 2001). An overview of South African quantitative studies in the MSLQ confirm the reliability of the measure, and have established that nine out of the fifteen Motivation and Learning Strategy subscales are significantly related to academic success for tertiary institution student. However limited support was found for the measure’s construct validity (McSorley, 2004). As a result of these findings, a lack of qualitative methods for confirming or disconfirming the quantitative results is noted.

The general aim of this study is to:

To explore the applicability of the MSLQ with respect to aspects related to bias, through assessing the item content with specific reference to language and cultural appropriateness. This is to ensure that items on the MSLQ did not favour or disadvantage any cultural and language groups. Investigations in this regard are a necessity in a country like South Africa in order to redress past assessment practices and promote fair assessment practices.
The present study forms a part of a broader study conducted by the APAP team at the Nelson Mandela Metropolitan University (NMMU). To assist us in achieving the aims of this study, your help would be greatly appreciated. Attached please find a copy of the MSLQ, a bias review questionnaire and a consent form covering ethical issues, all for your completion. Expert reviewers are encouraged to submit these documents before the 17 April 2006. Should you require further information, please contact me at 0735429135/ 041-5042511 (Student Counselling, Career and Development Centre). Thanking you in anticipation.

Yours sincerely

_______________
Ms. Nolwazi Somtsewu
Intern Counselling Psychologist

_________________  ________________
Mrs. A.S.R. Watson  Prof. C. D. Foxcroft
Research Supervisor  Research Co-supervisor
APPENDIX B:
INFORMATION AND INFORMED CONSENT FORM
NELSON MANDELA METROPOLITAN UNIVERSITY

<table>
<thead>
<tr>
<th>Title of the Research Project</th>
<th>The applicability of the Motivated Strategies for Learning Questionnaire (MSLQ) for a South African context.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Number</td>
<td>200314483</td>
</tr>
<tr>
<td>Principal Investigator</td>
<td>Nolwazi Somtsewu</td>
</tr>
<tr>
<td>Supervisors</td>
<td>Mrs. A.S.R. Watson &amp; Prof. C. D. Foxcroft</td>
</tr>
<tr>
<td>Address</td>
<td>Psychology Department, Nelson Mandela Metropolitan University, South Campus.</td>
</tr>
<tr>
<td>Contact Telephone Numbers</td>
<td>041-5042511/ 0735429135</td>
</tr>
</tbody>
</table>
Declaration by or behalf of participant:

(Person legally competent to give consent on behalf of the participant)

I, the participant and the undersigned, .............................................(name)

[I.D. number: ..................................................], a participant in the abovementioned research project,
of

........................................................................................................
........................................................................................................(Address of the participant)

I hereby confirm as follows:

I / the participant, was invited to participate in the above-mentioned research project which is being undertaken by Nolwazi Somtsewu of the Department of Psychology in the Faculty of Health Sciences at the Nelson Mandela Metropolitan University.

2. The following aspects have been explained to me, the participant:

2.1 Aim:

The investigator is exploring The applicability of the (MSLQ) with respect to aspects related to bias for a South African context.

The information will be used as part of the requirements for a MA Degree in Counselling Psychology.
<table>
<thead>
<tr>
<th>2.2 Procedures:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand that I will be asked to complete the Bias Review Form as well as this consent form.</td>
<td>Initial</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.3 Risks:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Initial</td>
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</table>

<table>
<thead>
<tr>
<th>2.4 Possible Benefits:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a result of my participation in this study of the Centre for Access for Assessment and Research (CAAR) will be alerted about the results and recommendations of this study, which if they are addressed will enhance the utility and validity of the MSLQ for a South African context.</td>
<td>Initial</td>
</tr>
<tr>
<td>As a result of my participation in this study I will also help in providing information for the adaptation of the measure.</td>
<td>Initial</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2.5 Confidentiality:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>The investigators will not reveal my identity in any discussion, description or scientific publication.</td>
<td>Initial</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.6 Access to Findings:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any new information or benefits that develop during the course of the study will be shared with me via a written report.</td>
<td>Initial</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2.7 Voluntary Participation/ Refusal/ Discontinuation:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>My participation is voluntary.</td>
<td>Initial</td>
</tr>
<tr>
<td>My decision whether or not to participate will in no way affect my present or future medical care/employment/ lifestyle.</td>
<td>Initial</td>
</tr>
</tbody>
</table>
3. The information above was explained to me/ the participant, by the researcher Nolwazi Somtsewu. I was also given the opportunity to ask questions and all these questions were answered satisfactorily.

4. No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalization.

5. Participation in this study will not result in any additional costs to myself.

I hereby consent voluntarily to participate in the above-mentioned project.

Signed/ confirmed at ...........................................on the ....................................2006

Signature of the participant signature of witness

.......................................................... ..........................................................

Full names of the participant full names of the witness

.......................................................... ..........................................................
APPENDIX: C
BIAS REVIEW FORM
Section 1

BIOGRAPHICAL INFORMATION

Gender:_____________________________________________________
Age:________________________________________________________________
Culture:________________________________________________________________
Home language:________________________________________________________________
Academic Qualifications:_____________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
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Work Experience with students:
_____________________________________________________________________
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THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE (MSLQ)

MOTIVATION SECTION

<table>
<thead>
<tr>
<th>Motivation Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes/To an Extent/No</td>
<td>Yes/To an Extent/No</td>
<td></td>
</tr>
</tbody>
</table>
1. In a course, I prefer course material that really challenges me so I can learn new things.

2. If I study in appropriate ways, then I will be able to learn the material in my course.

3. When I write a test I think about how badly I am doing compared with other students.

4. I think I will be able to use what I learn in one course in other courses.

5. I believe I will receive an excellent mark in my course.

6. I am certain I can understand the most difficult material presented in the readings for a course.

7. Getting good marks in my course is the most satisfying thing for me right now.

8. When I write a test I think about questions on other parts of the test I cannot answer.

9. It is my own fault if I do not learn the material in the course

10. It is important for me to learn the course material.
11. The most important thing for me right now is to pass my course.

<table>
<thead>
<tr>
<th>Motivation Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes/ To an Extent/ No</td>
<td>Yes/ To an Extent/ No</td>
<td></td>
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</tbody>
</table>

12. I am confident I can learn the basic concepts taught in my course.

13. If I can, I want to get better marks in my course than most of the other students.

14. When I write tests I think of the consequences of failing.

15. I am confident I can understand the most complex material presented by the lecturer in a course.

16. In a course, I prefer course material that arouses my curiosity, even if it is difficult to learn.

17. I am very interested in the content area of this course.
<table>
<thead>
<tr>
<th></th>
<th>Motivation Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>If I try hard enough, then I will understand the course material.</td>
<td></td>
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<tr>
<td>19.</td>
<td>I have an uneasy, upset feeling when I write an exam.</td>
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<tr>
<td>20.</td>
<td>I am confident I can do an excellent job on the assignments and tests in my course.</td>
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<tr>
<td>21.</td>
<td>I expect to do well in my course.</td>
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<tr>
<td>22.</td>
<td>The most satisfying thing for me in a course is trying to understand the content as thoroughly as possible.</td>
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<tr>
<td>23.</td>
<td>I think the course material will be useful for me to learn.</td>
<td></td>
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<tr>
<td>24.</td>
<td>When I have the opportunity, I choose course assignments that I can learn from, even if they do not</td>
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<tr>
<td>25. If I do not understand the course material, it is because I did not try hard enough.</td>
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<tr>
<td>26. I like the subject matter of the course I have chosen.</td>
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<tr>
<td>27. I like the subject matter of the course I have chosen.</td>
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<tr>
<td>28. I feel my heart beating fast when I write an exam.</td>
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<tr>
<td>29. I am certain I can master the skills being taught in my course.</td>
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<tr>
<td>30. I want to do well in my course because it is important to show my ability to my family, friends, employer or others.</td>
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<tr>
<td>31. Considering the difficulty of my course, the lecturer and my skill, I think I will do well in my course.</td>
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</tbody>
</table>
### LEARNING STRATEGY SECTION

<table>
<thead>
<tr>
<th>Learning Strategy Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
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<tbody>
<tr>
<td></td>
<td>Yes/ To an Extent/ No</td>
<td>Yes/ To an Extent/ No</td>
<td></td>
</tr>
<tr>
<td>32. When I study the reading for a course, I make an outline of the material to help me organize my thoughts.</td>
<td></td>
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<tr>
<td>33. During class time, I often miss important points because I am thinking of other things.</td>
<td></td>
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<tr>
<td>34. When studying for a course, I often try to explain the material to a classmate or friend.</td>
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<tr>
<td>35. I usually study in a place where I can concentrate on my course work.</td>
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<tr>
<td>36. When reading for a course, I make up questions to help focus my reading.</td>
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<tr>
<td>37. I often feel so lazy or bored when I study that I quit before I finish what I planned to do.</td>
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<tr>
<td>38. I often find myself questioning things I hear or read in a course to decide if I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Strategy Scale Items</td>
<td>Language Appropriateness</td>
<td>Cultural Appropriateness</td>
<td>Suggestions for rewording and or comments</td>
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<td>-------------------------------</td>
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</tr>
<tr>
<td>39. When I study, I practise saying the material to myself over and over.</td>
<td></td>
<td></td>
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<tr>
<td>40. Even if I have trouble learning the course material, I try to do the work on my own, without help from anyone.</td>
<td></td>
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<tr>
<td>41. When I become confused about something I am reading for a course, I go back and try to figure it out.</td>
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<td></td>
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</tr>
<tr>
<td>42. When I study for a course, I go through the readings and my class notes and try to find the most important ideas.</td>
<td>Yes/ To an Extent/ No</td>
<td>Yes/ To an Extent/ No</td>
<td></td>
</tr>
<tr>
<td>43. I make good use of my study time for a course.</td>
<td></td>
<td></td>
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<tr>
<td>44. If course readings are difficult to understand, I change the way I read the material.</td>
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</tr>
<tr>
<td>45. I try to work with other students from my class to complete the course</td>
<td></td>
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</tr>
</tbody>
</table>
assignments.

46. When studying, I read my notes and course readings over and over again.

47. When a theory, interpretation or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.

48. I work hard to do well in a course even if I don’t like what we are doing.

49. I make simple charts, diagrams or tables to help me organize course material.

50. When studying, I often set aside time to discuss course material with a group of students from the class.

51. I treat the course material as a starting point and try to develop my own ideas about it.

52. I find it hard to stick to a study schedule.

<table>
<thead>
<tr>
<th>Learning Strategy Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Appropriateness Yes/</td>
<td>Cultural Appropriateness Yes/</td>
<td>Suggestions for rewording and or comments</td>
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<td></td>
<td>To an Extent/ No</td>
<td>To an Extent/ No</td>
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<tr>
<td>53. When I study for a course, I pull together information from different sources, such as lectures, readings and discussions.</td>
<td></td>
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<tr>
<td>54. Before I study new course material thoroughly, I often read it through quickly to see how it is organized.</td>
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<td></td>
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</tr>
<tr>
<td>55. I ask myself questions to make sure I understand the material I have been studying in the course.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56. I try to change the way I study in order to fit the course requirements and the lecturer’s teaching style.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. I often find that although I read through the work before a class, I do not know what it is all about.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>58. I ask the lecturer to clarify concepts I do not understand well.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59. I memorize key words to remind me of important concepts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60. I memorize key words to remind me of important concepts.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>61. I try to think through a</td>
<td></td>
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</tr>
</tbody>
</table>
topic to decide what I am supposed to learn from it rather than just reading it over when studying for a course.

62. I try to relate ideas in a course to those in other courses whenever possible.

63. When I study for a course, I go over my class notes and make an outline of important concepts.

<table>
<thead>
<tr>
<th>Learning Strategy Scale Items</th>
<th>Language Appropriateness</th>
<th>Cultural Appropriateness</th>
<th>Suggestions for rewording and or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>64. When reading for a course, I try to relate the material to what I already know.</td>
<td>Language Appropriateness Yes/ To an Extent/ No</td>
<td>Cultural Appropriateness Yes/ To an Extent/ No</td>
<td>Suggestions for rewording and or comments</td>
</tr>
<tr>
<td>65. I have a regular place set aside for studying.</td>
<td>Language Appropriateness Yes/ To an Extent/ No</td>
<td>Cultural Appropriateness Yes/ To an Extent/ No</td>
<td>Suggestions for rewording and or comments</td>
</tr>
<tr>
<td>66. I try to play around with ideas of my own related to what I am learning in a course.</td>
<td>Language Appropriateness Yes/ To an Extent/ No</td>
<td>Cultural Appropriateness Yes/ To an Extent/ No</td>
<td>Suggestions for rewording and or comments</td>
</tr>
<tr>
<td>67. When I study for a course, I write brief summaries of main ideas from the readings and my class notes.</td>
<td>Language Appropriateness Yes/ To an Extent/ No</td>
<td>Cultural Appropriateness Yes/ To an Extent/ No</td>
<td>Suggestions for rewording and or comments</td>
</tr>
<tr>
<td></td>
<td>Learning Strategy Scale Items</td>
<td>Language Appropriateness</td>
<td>Cultural Appropriateness</td>
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</tr>
<tr>
<td>68.</td>
<td>When I cannot understand the material in a course, I ask another student in the class for help.</td>
<td>Yes/ To an Extent/ No</td>
<td>Yes/ To an Extent/ No</td>
</tr>
<tr>
<td>69.</td>
<td>I try to understand the material in a course by making connections between the readings and the concepts from the lectures.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70.</td>
<td>I make sure that I keep up with the weekly readings and assignments for a course.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71.</td>
<td>Whenever I read or hear an opinion or conclusion in a course, I think about possible alternatives.</td>
<td></td>
<td></td>
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<tr>
<td>72.</td>
<td>I make lists of important concepts for a course and memorize the lists.</td>
<td></td>
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</tr>
<tr>
<td>73.</td>
<td>I attend class regularly.</td>
<td></td>
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<tr>
<td>74.</td>
<td>Even when course materials are dull and uninteresting, I manage to keep working until I finish.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75.</td>
<td>I try to identify students in the course whom I can ask for help if necessary.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
76. When studying for a course, I try to determine which concepts I don’t understand well.

77. I often find that I do not spend very much time on a course because of other activities.

78. When I study for a test, I set goals for myself in order to direct my activities in each study period.

79. If I get confused taking notes in class, I make sure I sort it out afterwards.

80. I rarely find time to review my notes or readings before an exam.

81. I try to apply ideas from course readings in other class activities such as lectures and discussions.

Section 3

CONCLUSION

Based on the qualitative evidence gathered during this review, the reviewer concludes there is evidence that the test is appropriate or is biased against a certain group.

Please briefly motivate your conclusion:

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

Thank you
### APPENDIX: D

#### MSLQ ITEMS PER SUBSCALE

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