

**The dimensionality of the Rosenberg Self-Esteem Scale (RSES)
with South African University Students**

By

Nombeko Lungelwa Velile Ndim

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SUPERVISOR: Dr. M. Makhubela

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DECLARATION

I declare that the mini-dissertation hereby submitted to the University of Pretoria, for the degree of Masters in Research Psychology has not previously been submitted by me for a degree at this or any other university; that it is my work in design and in execution, and that all material contained herein has been duly acknowledged.

NLV Ndim

Initials & Surname

20.03.2017

Date

DEDICATION

This mini-dissertation is dedicated to my mother, my aunt and my grandmother. My rocks.

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I would like to acknowledge all the people who have been there for me and have supported me from the time I decided to pursue my Masters degree until now. To my loving mother, thank you for your relentless emotional, spiritual and financial support, I wouldn't be at this level had it not been for you constantly stretching yourself so that I could pursue my studies. To my extended family and friends, your prayers and constant encouragement have not gone unnoticed, I appreciate you. Thank you to my supervisor Dr. Makhubela who has allowed me to use his data for my mini-dissertation, guided me throughout the process, and helped me with my data analysis. I appreciate how efficient and thorough you have been, I'm not sure how far I would have gotten had it not been for you. Finally, to my Lord and Saviour Jesus Christ, Father I thank you for your grace and guidance.

ABSTRACT

The Rosenberg Self-Esteem Scale (RSES) has been the subject of widespread debate over the years. Initially conceptualised by Rosenberg as a unidimensional measure of global self-esteem, other studies have found evidence that challenges this notion, suggesting that this scale is in fact a multidimensional measure. The aim of this study was to investigate the construct validity of the RSES among South African university students. The RSES was administered to students from two different South African universities located in different regions (N = 304). Principal component analysis (PCA) was used in order to investigate the factor structure of the RSES and correlations were run between the RSES and the General Self-Efficacy Scale (SGSES) to investigate the relationship between self-esteem and self-efficacy. The PCA findings yielded a single factor structure of the RSES in the South African university student sample and a significant positive correlation was observed between self-esteem and self-efficacy. The findings therefore supported the construct validity of the RSES within the South African university context.

Key words: *construct validity, dimensionality, Rosenberg Self-Esteem Scale, self-esteem*

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CHAPTER 1

1. Overview of the study

1.1 Introduction

Self-esteem is one of the most commonly studied constructs in the psychology literature. The vast interest in this self-construct can be attributed mainly to its association with psychological well-being (Kususanto & Chua, 2012), academic performance among learners (Aryana, 2010; Rosli et al., 2012), and work performance (Ferris, Lian, Brown, Pang, & Keeping, 2010). High self-esteem is associated with positive functioning, good mental health, personal fulfilment, better social adjustment, greater achievement and success. Conversely, low self-esteem is associated with a higher risk of pathology problems such as depression, anxiety, eating disorders, high risk behaviours, and underachievement (Mann, Hosman, Schaalma, & de Vries, 2004). Evidence of the relationship between self-esteem and the above-mentioned outcomes has led many to speculate that boosting one's self-esteem leads to positive outcomes. The problem with these speculations is that the studies that they are based on have only been able to demonstrate that there is a relationship between self-esteem and the above-mentioned outcomes. However, none of them have been able to prove that self-esteem causes a change in these outcomes or vice versa (Baumeister, Campbell, Krueger, & Vohs, 2003).

The lack of evidence about self-esteem being a causative factor has led scholars to question the actual value of the construct and whether the commonly held beliefs about the benefits of increasing one's self-esteem have any scientific basis. Scholars have been divided in their views about this construct with some asserting that it doesn't have much value and that high self-esteem may in fact be counter-productive, promoting undesirable personality traits such as narcissism (eg., Baumeister et al., 2003; Leary, Tate,

Adams, Allen, & Hancock, 2007). Others have however argued against this notion, asserting that self-esteem is essential for the individual's functioning and that it fills one's life with meaning (e.g., Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). In fact, Rosenberg (1989) states that high self-esteem is merely an indication that one feels that they are good enough or they are a person of worth, rather than an indication of their feelings of superiority (Sowislo & Orth, 2013). Although views about self-esteem and its significance vary, the general presumption is that there are considerable differences between those with high self-esteem and those with low self-esteem, with the latter being presumed to be more well-adjusted than the former (Heatherton, Wyland, & Lopez, 2003).

Whether truly beneficial or not, self-esteem remains an important construct in psychological health research and has been operationalised in various ways over the years depending on the context in which it has been viewed. The construct was initially defined by William James in 1890 as an affective construct determined by one's successes and failures and therefore open to enhancement. Moreover, he posited that it is one's comparison of their ideal self and their actual self (James, 1983). Coopersmith (1967) defines self-esteem as one's evaluative judgement of oneself, which reflects an attitude of approval or disapproval towards oneself. In his definition of self-esteem, Coopersmith highlights that self-esteem is; enduring, multi-faceted depending on one's evaluative judgement of different aspects of their lives. It is a judgement process where one evaluates themselves on the basis of their performance, capabilities and attributes. This is a personal evaluative process informed by one's personal standards and the things that they value (Heatherton et al., 2003).

In addition to defining self-esteem, scholars have attempted to explain how one's self-esteem develops. One such scholar is Robert White (1963) who saw self-esteem as a phenomenon that develops gradually through a reciprocal

process where one's self-esteem is affected by and in turn influences one's experiences and behaviour. He further asserts that self-esteem is shaped by two sources; namely, internal sources that are one's own achievements and external sources which are people's affirmation of the person. The inclusion of external sources is based on Cooley's (1902) conception of the *looking-glass self-hypothesis*, where self-views are seen as being partly derived from the feedback that one receives from others (Sowislo & Orth, 2013).

Self-esteem has often been confused with self-concept, resulting in the two terms being used interchangeably. Like self-esteem, the development of one's self-concept is partly informed by one's experience with their environment and by the treatment that they receive from significant people in their lives (Heatherton et al., 2003; Shavelson, Hubner, & Stanton, 1976). However, using the terms interchangeably is a mistake because although they are related concepts, they are different and they should be distinguished as two different terms (Heatherton et al., 2003). Self-concept is said to be the cognitive and more complex component of the self. It is the totality of the thoughts, beliefs, and attitudes that one has of themselves. Self-concept therefore goes even further than self-esteem as it includes everything that makes up one's identity; i.e., their race, age, gender, values, beliefs etc. Self-esteem definitions on the other hand lean more towards the affective or emotional aspect of the self and are based on how one feels about themselves and the value that they place on themselves (Bong & Skaalvik, 2003; Heatherton et al., 2003; Huitt, 2011). Although various definitions had been offered for self-esteem and attempts had been made to even distinguish between this construct and similar constructs, some scholars remained critical of it. The main issues cited by these scholars had to do with there being inadequate operationalisation of the construct which had negative implications for its measurement (Blascovich & Tomaka, 1991).

Underlying the dissatisfaction about the lack of adequate operationalisation of the construct was the fact that a scale is required in order to assess one's self-

esteem. The scale's construct validity needs to be established before the findings can be deemed valid and true and in order to do that, a formal and explicit definition of the construct is required (Furr, 2010). One's definition and subsequent measurement of self-esteem depends largely on the theory about the sources of self-esteem that they subscribe to. According to William James' (1890) theory on the source of self-esteem, self-esteem develops when one is able to achieve and exceed their goals and enjoys considerable success as one progresses through life. From this perspective, self-esteem would have to be assessed by examining the difference between where one currently is and where one would like to be. Measures of self-esteem developed from this theory would therefore include items on personal beliefs and competency (Heatherton et al., 2003).

Other versions of the development of self-esteem are embedded in the contention that self-appraisals cannot be separated from social milieu. Therefore, according to this view, the way in which people respond to themselves is a function of their internalisation of the treatment they've experienced from significant people such as friends, family members and partners. Individuals with low self-esteem are said to have most likely been exposed to constant criticism, ridicule and rejection from those around them. Likewise, individuals with high self-esteem are said to come from a social background in which those around them have treated them with value and respect (Heatherton et al., 2003). This idea is based on Cooley's (1902) *looking-glass self-concept* and Mead's 1934 *symbolic interactionism*, where people internalise the way in which those closest to them treat them which tends to inform their own attitudes towards themselves (Heatherton et al., 2003).

Rosenberg's (1979) definition of self-esteem, which is the most followed and used in the self-esteem literature, is grounded on the basic tenets of *symbolic interactionism*. He views self-esteem as one's general or global appraisal of oneself (Leary & Baumeister, 2000). According to Rosenberg (1979), self-

esteem is one's overall attitude, whether positive or negative, towards oneself. This individual's attitude towards him/herself is shaped by his/her culture, society, family and interpersonal relationships (Rosenberg, 1979). Rosenberg's definition of self-esteem is the basis upon which he developed what has now become the most widely used measure of self-esteem known as the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979; Tafarodi & Ho, 2006; Wongpakaran & Wongpakaran, 2012). The dominance of the scale in self-esteem research is reflected in its translation into 28 different languages across 58 nations and in its ability to perform well in these different settings (Schmitt & Allik, 2005). In addition to this, the scale has been cited 3016 times between 2010 and 2014 which provides further affirmation of its popularity (Alessandri, Vecchione, Eisenberg, & Łaguna, 2015).

The RSES is one of many self-esteem measures and it falls within the top four measures of the construct (Blascovich & Tomaka, 1991; Rossouw, 2010). According to Rosenberg, the scale measures global self-esteem as opposed to certain constituent parts, which some researchers ascertain are different domains of self-esteem. The RSES was therefore developed upon the premise that self-esteem is a unitary global trait. Since its development, the scale has been rigorously evaluated, translated, adapted and used successfully in a variety of contexts (Alessandri et al., 2015; Blatný, Urbánek, & Osecká, 2006; Boduszek, Hyland, Dhingra, & Mallett, 2013; Michaelides et al., 2016; Schmitt & Allik, 2005; Wongpakaran & Wongpakaran, 2012). Moreover, it is a short scale, easy to administer, and the items are relatively simple. This makes it easier for people with lower literacy levels to understand the statements in order to complete the scale. Although there are items that are said to add slight cognitive complexity to the scale, it is still relatively simple to understand and that is one of the things that sets it apart from the other scales (Bagley, Bolitho, & Bertrand, 2007). Other frequently used measures of self-esteem are Coopersmith's Self-Esteem Inventory and Janis and Field's Feelings of Inadequacy Scale (Tafarodi & Ho, 2006). These are multidimensional scales

measuring various affective qualities of self-concept and are mostly used when researchers wish to examine multiple components of self-esteem (Heatherton et al., 2003). These scales would therefore be used in scholarly work that subscribes to the notion of domain specific self-esteem which is defined as the individual's judgement of their value within a specific area (Leary & Baumeister, 2000; Sowislo & Orth, 2013).

The above-mentioned measures of self-esteem have one thing in common, namely that they are all self-report scales. However, there are other methods of assessing self-esteem that have been employed. These include using implicit measures of self-esteem such as the Implicit Association Test (Greenwald & Farnham, 2000) and the Name-Letter Test (Greenwald & Farnham, 2000; Nuttin, 1985). Although these are budding alternative measures of self-esteem, their use is restricted by the lack of evidence to prove their reliability. In fact, most studies that have employed these measures in their assessment of self-esteem have found them to have low reliability (Bosson, Swann, & Pennebaker, 2000; Krizan & Suls, 2009). Moreover, they have also shown them to have low convergent validity with each other as well as with other explicit measures of self-esteem (Sowislo & Orth, 2013). Therefore, to date, self-report measures have dominated the field as the scales of choice in self-esteem research and literature (Sowislo & Orth, 2013).

Interest in self-esteem continues as the debate surrounding its dimensionality persists. This construct is one of the oldest topics in psychology; therefore, it is bound to have various definitions as can be seen from the above. Providing an operational definition of the construct is therefore paramount in order to ensure that there is no confusion about what is meant by the term and for measurement purposes (Mruk, 2006). Furthermore, its association with other psychological constructs such as self-efficacy (Imam, 2007), anxiety (Nordstrom, Goguen, & Hiester, 2014), self-compassion (Neff, Kirkpatrick, & Rude, 2007), depression (Sowislo & Orth, 2013) and many others contributes to its relevance as an

important area of interest in psychology and psychological research. The measurement of this construct therefore continues to occupy academics and psychology professionals.

1.2 Statement of the Problem

The dimensionality of the RSES has been the subject of debate in the past years. While the scale was initially conceptualized as a unidimensional scale (Rosenberg, 1965), subsequent studies have yielded findings that are contrary to this, advancing the notion of the RSES being a multidimensional scale. The debate has for the most part focused on the two-factor structure as the one that best represents the dimensionality of self-esteem (Ang, Neubronner, Oh, & Leong, 2006; Roth, Decker, Herzberg, & Brähler, 2008). However, other studies have introduced the three-factor structure, the bifactor structure and the hierarchical structure as the ones that best represent the factor structure of the RSES (Blatný et al., 2006; Chen, Hayes, Carver, Laurenceau, & Zhang, 2012; Corwyn, 2000; Gana et al., 2013; Maluka & Grieve, 2008). This trend of varied findings is also true in South Africa, where some studies have yielded results that supported the unidimensionality of the RSES (Maluka & Grieve, 2008; Westaway, Jordaan, & Tsai, 2015; Westaway & Maluka, 2005), while others have provided contrasting results, pointing to the scale being bidimensional (e.g., Bornman, 1999).

In a study done by Maluka and Grieve (2008) only one substantial factor was found and it explained 83% of the variance in the RSES, indicating that the items on the RSES empirically represent a single concept. Westaway et al. (2015) cited poor functional literacy and a lack of questionnaire sophistication among South African participants (i.e., Blacks, Indians, Coloureds and Whites) as a challenge to using the RSES and getting reliable results from it. To reduce the effects of this, they used fieldworkers who were fluent in English and the various languages spoken by the participants to help the respondents with the

questionnaire. The internal consistency of the scale has been assessed in various contexts with varying results (Oladipo & Bolajoko, 2014). Some of the research studies have reported high internal consistency of the RSES (e.g., Donnellan, Ackerman, & Brecheen, 2016; McKay, Boduszek, & Harvey, 2014; Pullman & Allik, 2000; Wongpakaran & Wongpakaran, 2012) while others have only found it to be moderate (e.g., Lee & Lee, 2000; Martín-Albo, Núñez, Navarro, & Grijalvo, 2007) and others have reported extremely low internal consistency (e.g., Oladipo & Bolajoko, 2014). The contradictory findings seen in the RSES literature about its factor structure and other psychometric properties therefore warrant further empirical exploration.

1.3 **Aim of the study**

This study aimed to determine the construct validity of the RSES among South African university students.

1.4 **Objectives of the study**

The following objectives were developed to answer the research questions:

1.4.1 To evaluate the factor structure of the RSES; and

1.4.2 To examine the association between self-esteem and general self-efficacy.

1.5 **Research questions**

The following research questions were developed for this study:

1.5.1 What is the factor structure of the RSES in university students? and

1.5.2 Will self-esteem have significant and positive correlations with general self-efficacy?

1.6 Significance of the study

According to Corwyn (2000), determining the structure of the RSES is important because unidimensional and multidimensional conceptualizations of self-esteem represent different measurement procedures. Thus, conceptualizing the RSES as a unidimensional measure of self-esteem when it is actually multidimensional may lead to confounding influences on the interpretation of the results. In applied research, the respondent's score is based on the sum of their responses to the items on the RSES which is an approach that assumes that a single global factor is being assessed. If the RSES is indeed a multidimensional scale, this would imply that using a composite score when determining the respondent's self-esteem score is in fact incorrect (Donnellan et al., 2016). This has implications for the validity of the scores and the actions taken as a consequence of this could prove to have adverse effects.

Moreover, the structure of the RSES is conceptually important due to the fact that if it does indeed have multiple dimensions, then that would be an indication of a need to do more theoretical and empirical work on self-esteem in order to account for the variants of this construct (Donnellan et al., 2016; Supple, Su, Plunkett, Peterson, & Bush, 2013). The RSES has mainly been validated on Western populations. In South Africa some validation studies have been conducted on the scale. These studies include those done by Maluka and Grieve (2008), Westaway and Maluka (2005) and Westaway et al. (2015), that used principal component analysis (PCA) with traditional criteria/methods for factor selection/extraction (i.e., the Kaiser-Guttman rule and Cattell's scree plot) in order to determine the factor structure of the RSES.

The current study investigated the construct validity of the RSES using a diverse sample of South African students. Furthermore, the factor structure of the RSES was determined on a South African student population using the minimum average partial (MAP) (Velicer, 1976) methods. In addition to this, conventional factor extraction methods, like the Kaiser-Guttman criterion (eigenvalue ≥ 1.00) and Cattell's scree plot test were also used. The latter significantly overestimate the number of dimensions to retain, and are also based on rules of thumb. In order to combat the issues that come with the conventional methods, recent literature (e.g., O'Connor, 2000) supports the use of methods such as the MAP (Velicer, 1976) method due to their precision, psychometric reliability and negligible inconsistency of the results (Zwick & Velicer, 1986). The study therefore used more statistically superior methods of extraction, contributing to more reliable results and conclusions regarding the factor structure of the RSES in a South African student population. Moreover, determining the construct validity of the RSES in a South African student population will contribute to more accurate inferences being made about the use of the RSES in the African and more specifically the South African context.

1.7 Operational definition of terms

1.7.1 *Self-esteem*

In the context of this study self-esteem refers to one's negative or positive attitude towards oneself (Rosenberg, 1979).

1.7.2 *Dimensionality*

Dimensionality refers to the factor structure of the scale or the number of latent variables that are assessed by a given psychological measure (Furr, 2010). A unidimensional scale is one that is comprised of items that reflect a single psychological variable. A multidimensional scale is one comprised of sets of items reflecting two or more different psychological variables (Furr, 2010).

1.7.3 *Construct validity*

This study uses Messick's (1989) conceptualisation of construct validity. According to Messick, construct validity is based on integrating the evidence that supports the interpretation and the meaning of the test scores. Construct validity is the extent to which the evidence provided by the participants' scores supports the inferences made and the actions taken as a result of this evidence.

1.7.4 *General Self-efficacy*

General self-efficacy refers to an individual's belief about their competence in successfully dealing with a variety of challenging situations (Romppel et al., 2013).

1.8 **Conclusion**

In this chapter, a general introduction of self-esteem and its importance in the field of psychology is given. This is followed by a description of the problem statement, aim and objectives of the study as well as the research questions. The section ends with the operational definitions of the most frequently used terms in the study.

CHAPTER 2

THEORETICAL PERSPECTIVE AND LITERATURE REVIEW

2. Introduction

This chapter outlines the theoretical underpinning of this study. A review of the literature on the RSES and the relationship between self-esteem and self-efficacy is also included.

2.1 Theoretical perspective

2.1.1 Messick's contemporary theory of unified validity

Validating measures is an essential activity that produces objective evidence that the measure meets the requirements for its intended use in the context in which is being administered (Zumbo, 2009). It is an essential process because the validation of measures is linked to the building and testing of theories. However, the importance of validating measures does not end there, measures are used to assess individuals, a process which according to Zumbo (2009) is usually done in order to make decisions about the type of intervention the individual may require. It is also a process that contributes to making decisions about the kind of research that is still required and the kind of changes that need to be effected in policies (Lai, Wei, & Hall, 2012). To elaborate on the importance of the outcomes of measurement, Zumbo (2009) states: "It is rare that anyone measures for the sheer delight one experiences from the act itself. Instead, all measurement is, in essence, something you do so that you can use the outcomes..." (p. 66). Zumbo's words highlight the importance of the consequences of measurement as administering a measure is often done for the purpose of bringing about personal or social change (Hubley & Zumbo, 2011). The integral function of measurement validation therefore becomes

apparent when taking all of this into consideration as the consequences of the measurement scores may have such vast implications.

In South Africa, the use of validated measures is not something that is taken lightly as the Health Professions Council of South Africa (HPCSA, 2006) has set minimum standards to be met before psychologists can use a psychological test. Among the standards listed is that there should be sufficient evidence provided to show that a test's intended purpose is met and that the construct of interest is clearly outlined. The reliability and the validity of a test needs to be determined and empirical evidence showing the appropriateness of the test needs to be provided (HPCSA, 2010). Therefore it can be seen that in the process of evaluating the validity of a test or a measure, which in this case are terms that are being used interchangeably, what needs to be highlighted are the test's intended purpose, its use and the interpretations of its scores (Lai et al., 2012).

The interpretation of its score is especially important in psychological measurement due to the implications that it may have on the individual or group to whom the measure is being administered. The construct validity of the measure therefore needs to be established within the context that it is being used as failing to do so renders the results of the measure invalid (Foxcroft & Roodt, 2013). The theoretical point of departure of this study is Messick's theory of unified validity which broadens the validity framework by evaluating the validity of the measure through the consequences of the interpretation of the scores yielded by the measure. Although traditional conceptions of validity remain relevant, Messick argues that they present narrow views of the concept. Messick's contemporary theory of unified validity therefore gives a more expanded view of validity (Linn, Baker, & Dunbar, 1991).

Validity has traditionally been divided into three distinct types; namely, content, criterion, and construct validity (Messick, 1994). These were meant to relate to

the purpose of the test. For example, content validity was used for tests that described how one performed in a specific subject, criterion validity was used on tests that were meant to predict one's future performance in a certain field, and construct validity was used to make inferences about the data obtained from a certain measure. Although the different types of validity have continued to be used over the years, in modern validity theory, they are often described as a unitary validity framework (Wolming & Wikström, 2010). This unitary validity framework merges these different 'types of validities' as it were, into a construct framework used to empirically test hypothesis regarding the meaning of scores as well as theoretically relevant relationships (Messick, 1994).

In his argument for a unitary validity framework, Messick (1989) highlighted certain shortcomings with the traditional view of validity stating that it is fragmented, incomplete, and fails to account for the value that the meanings of the scores bring as a basis to take appropriate action. According to Messick, validity is "an integrated evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores or other modes of assessment" (Messick, 1989, p. 13). As can be seen, Messick's new conceptualisation of validity included social consequences of measurement outcomes as being fundamental aspects in the development of a more comprehensive theory of construct validity (Wolming & Wikström, 2010). This unified theory went further than the initial, more traditional view of validity, seeing validity as an evaluative summary encompassing the evidence and the potential consequences of the interpretation of the scores and use thereof (Messick, 1994).

Messick's (1989) unitary concept of validity made salient the fact that when validating a measure, what is validated are the inferences made about what the measure can be used for rather than the measure itself (Wolming & Wikström, 2010). Moreover, validity as conceptualised by Messick, is about the

appropriateness, meaningfulness and utility of the inferences made given the context in which the measure is being used (Hubley & Zumbo, 2011). Messick's contemporary theory of validity currently forms the basis for examining the validity of the scores yielded by the RSES. Evidence of the RSES score validity is explored by construct validity measurements, which in the current study include assessing: 1) if self-esteem will have significant and positive correlations with self-efficacy and 2) what will be the factor structure of the RSES in university students. Messick (1989) proposed a multidimensional view of construct validity and focused on sources of evidence that support claims of construct validity; namely, substantive, structural (internal), generalizability, consequential and external sources of construct validity (Conley & Karabenick, 2006).

The sources of construct validity that are going to be assessed in this study are structural and external sources of construct validity. Structural evidence looks at whether the scores that are obtained are a reflection of the theoretical model that underlies the test; therefore, it looks at the relationship between the theory and the data reduction method. External evidence is the evidence that is most often considered because it looks at how the instrument relates to other instruments that measure the same and different constructs (i.e., convergent and discriminant validity) (Conley & Karabenick, 2006; Messick, 1994). The present study aims to get evidence of the structural and external sources of construct validity by assessing the relationship between the RSES scores and the General self-efficacy (SGSES) scores.

2.2 Literature review

Self-esteem is a hypothetical construct which means that it is a latent variable that is not directly observable but can be reflected in a test (Rossouw, 2010). As is the case with other psychological constructs, one's self-esteem level is inferred from one's responses to statements that are meant to represent his/her feeling of self-worth (Alessandri et al., 2015). Considerable research has been done to investigate the nature of self-esteem which has led to an abundance of literature on this construct. However the lack of consensus on the dimensionality of the construct has led to ongoing debate about how the construct is best conceptualised (Sowislo & Orth, 2013). Some scholars have argued that it is best conceptualised as a global evaluation of the self while others have posited that it is best conceptualised as being domain specific and comprised of multiple dimensions (Sowislo & Orth, 2013; Swann & Bosson, 2010). Although various scales have been used to assess this construct, the RSES is the most prominent one. Since its introduction, the RSES has been thoroughly used and researched, so much that it has been widely accepted as the standard against which other self-esteem scales have been compared (Alessandri et al., 2015; Robins, Hendin, & Trzesniewski, 2001).

The position that the RSES holds in self-esteem literature makes it all the more important to constantly evaluate the scale's psychometric properties across various contexts (Gana et al., 2013). Hence much of the research that has been done on the scale has focused on properties such as its dimensionality, its reliability and its validity (e.g., Greenberger, Chen, Dmitrieva, & Farruggia, 2003; Maluka & Grieve, 2008; Tomás, Oliver, Hontangas, Sancho, & Galiana, 2015; Wongpakaran & Wongpakaran, 2012) and also on its use in different contexts and population groups (Schmitt and Allik, 2005). The findings of these various studies have indicated that although the RSES has maintained a certain level of prominence in self-esteem literature, the scale does not come without its own controversies. Findings of the psychometric properties of the scale have

varied, leading to the onset of widespread debate about the scale, mainly about the dimensionality of the scale (Huang & Dong, 2012; Marsh, Scalas, & Nagengast, 2010).

The dimensionality of the RSES presents various issues. In cases where unidimensional findings are produced, it is inferred from those findings that the items on the scale are measuring one common psychological variable. In the case of the RSES, the common psychological variable would be global self-esteem. Multidimensional findings are an indication that the scale reflects two or more psychological variables (Furr, 2010). In cases where multidimensional findings are produced, it becomes important to determine the correlation between the different dimensions. A strong correlation between the different dimensions suggests that the dimensions are separable yet they share a deeper common psychological variable (Furr, 2010). The challenge with multidimensional findings is therefore having to identify the nature of the psychological variables reflected by the dimensions in order to use the appropriate scoring technique (Furr, 2010).

The RSES was initially conceptualised as a unidimensional measure of self-esteem, it consists of ten items that reflect one's internal positive or negative feelings towards oneself. One of the potential advantages of the RSES is the fact that it was developed in accordance with a highly recommended strategy of developing scales consisting of a balanced number of positively and negatively worded items (Alessandri et al., 2015; Paulhus, 1991). This approach to developing self-report scales comes highly recommended due to its ability to control for acquiescence response bias as these items require the respondent to ponder on the statement before responding (Marsh, 1996; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Ensuring that the scale has a balanced number of positive and negatively worded items does however also come with the disadvantage of introducing

added complexities to the interpretations of the dimensionality of the measure (Alessandri et al., 2015). The negatively worded items tend to introduce method effects which are variances that occur because of measurement procedures rather than the actual construct that is being investigated (Marsh et al., 2010). These items add certain cognitive and semantic complexities that are not present in the positively worded items. The respondents are therefore usually required to think a little more in order to make sense of, and respond adequately to some of these items which may distort their scores on the RSES (Marsh et al., 2010). The results yielded may then inadvertently be a reflection of their language or cognitive abilities rather than their self-worth evaluation as the scale intended, which has implications for the validity of the scale. The issue of having items that add some cognitive complexity can be especially challenging for certain respondents who are already at a disadvantage due to limited functional literacy. Westaway, Rheeder, Van Zyl, and Seager (2002) highlighted this issue in a South African sample using self-report questionnaires, stating that the high proportion of people who are functionally illiterate poses a threat to the validity of these measures.

The negatively worded items have been reported to have poor reliability in some studies (e.g., Gana et al., 2013; Mckay et al., 2014). A difference in the means, variances and factor structures of the positively and negatively worded items has also been reported, which brings into question whether the results yielded are an accurate reflection of the factor structure of the measure (Mckay et al., 2014). The presence of method effects may distort the findings about the factor structure of the scale. A multifactor solution may therefore be identified as being the best structure which may lead to what may be incorrect interpretations of this finding. The researchers may, in this instance, incorrectly conclude that the measure taps into distinct psychological variables when in reality, these variables are only a function of the phrasing of the items and not an accurate representation of the respondent's score on the measure (Mckay et al., 2014). Much of the continuing debate about the dimensionality of the

scale is therefore due to disagreements on how the observed factors need to be interpreted (Tafarodi & Milne, 2002). To deal with the dimensionality issues, a number of studies have proposed that one or more method factors should be considered whenever the dimensionality of the RSES is investigated (Gana et al., 2013; Kuster & Orth, 2013).

One item on the RSES has been particularly highlighted as being a problematic item in certain contexts. According to Wongpakaran and Wongpakaran (2012), one of the negatively worded items that is thought to contribute to the indeterminable factor structure is item 8, which states “I wish I could have more respect for myself”. In a study done using the Thai version of the RSES, Wongpakaran and Wongpakaran (2012) observed an unsatisfactory factor loading on this item, with a low-item correlation of 0.015. These researchers were not the only ones to observe this, findings from other empirical studies done in African countries (i.e., Botswana and Zimbabwe) have also corroborated this, indicating a low factor loading and communality for this item (Westaway et al., 2015).

Given these findings, some researchers have agreed that this is an indication of the need to re-construct the item (Pullman & Allik, 2000; Schmitt & Allik, 2005; Supple et al., 2013). Marsh et al. (2010) explains that the reason for this item being problematic is because of its wording. The item is negatively worded and the respondent may mistakenly treat it as having a positive meaning when it actually has a negative meaning (Wongpakaran & Wongpakaran, 2012). A possible reason for this is offered by Marsh (1996) who speculated that disagreeing with negating negatively worded items adds a degree of cognitive complexity. To demonstrate this, Marsh (1996) conducted a study that showed that students with poorer verbal ability were especially susceptible to making responses to negatively worded items that were inconsistent with their responses to the positively worded items.

In addition to the cognitive and semantic complexities added by the presence of the negatively worded items, Greenberger et al. (2003) stated that the presence of positive and negatively worded items increases the probability of response error issues. These scholars posited that the presence of the different item-wording also tends to lead to a situation where the respondents tend to agree with the descriptions that paint them in a positive light and to disagree with those that they perceive to paint them in a negative light. They also highlighted the challenge of yay-saying and nay-saying where the respondents would just respond positively to the positively worded-items and negatively to the negatively worded items without having an actual understanding of the meaning of the statements (Greenberger et al., 2003).

These challenges have largely contributed to the debate about the dimensionality of the RSES. Although its initial conceptualisation was that of a unidimensional measure of global self-esteem, further research on the factor structure of this scale has produced findings suggesting that it is in fact a multidimensional scale (Blatný et al., 2006; Fleming & Courtney, 1984; Huang & Dong, 2012). In fact, most of the subsequent studies have yielded findings that suggest that the one-factor solution seems to be the worst fit to their data (Ang et al., 2006; Boduszek et al., 2013; Boduszek, Shevlin, Mallett, Hyland, & O'Kane, 2012) when compared with other factor solutions such as the two-factor solution (e.g., Roth et al., 2008), the three-factor solution (e.g., Blatný et al., 2006), bifactor solution (e.g., Alessandri et al., 2015) and the hierarchical solution (e.g., Flemming & Courtney, 1984).

Dimensionality issues are a reflection of the nature of the scale and have a number of implications for the scoring, evaluation and interpretation of the scale (Furr, 2010). As it stands, determining the respondent's score on the RSES involves summing the respondent's responses to the statements and using the overall score to determine the respondent's positive or negative attitude towards him or herself. The negatively worded items are reverse scored while

the positively worded items are taken as they are (Gana et al., 2013). This method of scoring is in accordance with the scale's conceptualisation as a unidimensional scale measuring self-esteem. Therefore, the assumption is that both the negatively and positively worded-items are measuring the same underlying construct (Marsh, 1996). The discrepancies that have led to the debate surrounding the scale's dimensionality has prompted a revision of this assumption and further investigation of the scale. If the scale is indeed a multidimensional scale then that would mean that each dimension would have to be scored separately and each dimension would require psychometric evaluation (Furr, 2010). Assessing the correlation between these different dimensions would therefore be used as a basis for deciding whether their scores can all be added together to get an overall self-esteem score, or whether they should be taken as independent scores assessing different psychological variables (Furr, 2010). Indeed, neglecting to address dimensionality issues may lead to findings that have no real psychological meaning and findings that may lead to incorrect conclusions about the scale and construct of interest (Furr, 2010). This has implications for the actions taken as a result of those findings (Hubley & Zumbo, 2011).

2.2.1 Unidimensional factor structures of the RSES

Factor analytic studies (both EFA and Confirmatory factor analysis [CFA]) using different versions of the RSES (6, 7, & 10 items) across different populations have supported a unidimensional factor structure (e.g., Gray-Little, Williams, & Hancock, 1997; Robins et al., 2001; Shevlin, Bunting, & Lewis, 1995). However, a simple unidimensional self-esteem model has been challenged by a number of studies using both EFA and CFA (e.g., Alessandri et al., 2015; Kaplan & Pokorney, 1969; Marsh, 2010; Owens, 1993, 1994). These findings pose a challenge to the theoretical basis of the unidimensional conceptualisation of the RSES and the inferences made from the scores yielded by this scale (Marsh et

al., 2010). Understanding the structure of the RSES is therefore a fundamental process due to the above-mentioned reasons.

One of the earliest researchers to assess the factor structure of the RSES and find what seemed to be a bidimensional structure were Carmines and Zeller (1979). These researchers labelled the two respective factors as positive and negative self-esteem. However, upon further investigation of these two factors, it was discovered that the two factors did not correlate differentially with external variables. They therefore concluded that these factors may have resulted from method effects and that the RSES should be considered a unidimensional scale (Gana et al., 2013; Quilty, Oakman, & Risko, 2006).

In an attempt to reconcile the various conflicting findings about the factor structures of the RSES, Marsh (1996) used CFA to evaluate six alternative interpretations of one and two factor models. The results indicated that the single-factor model constantly failed to fit the data and as per Carmine and Zeller's (1979) findings, two-factor models performed much better than the single-factor model. However, the two-factor models did not do as well as the models that accounted for item-wording or method effects. The last two models they assessed were the single-factor models with method effects associated with the negatively worded items and positively worded items respectively. Their findings showed that the RSES could be accurately represented by a single common factor and a method factor associated with the negatively worded items (Marsh, 1996). Marsh's (1996) study set the pace for subsequent investigations of the RSES where alternative models were assessed. Thomas and Oliver (1999) followed Marsh's example by using CFA to investigate nine models, six of which took method effects into account. Their findings were also in line with those of Marsh (1996) indicating that a single common factor and a method factor mainly comprised of the negatively worded items was the best fitting model (Thomas & Oliver, 1999). However, Aluja, Rolland, García, and Rossier (2007) found that the best fit among French university students

(predominantly female) was a one-factor RSES model with correlated errors among three of the positive items and for two of the negative items.

Marsh et al. (2010) set out to resolve the various claims about the factor structure of the RSES by using more evolved methodological approaches. They noted the relevance of positive and negative item-wording effects, however they also highlighted that most of the authors who investigated these issues (e.g., Corwyn, 2000; Marsh, 1996), only considered a limited number of models. The main limitation that they highlighted in Marsh's (1996) study was that models with latent method factors (LMFs) were not tested. Moreover, Marsh et al. (2010) pointed out that some of these researchers (e.g., Aluja et al., 2007) only tested a few structural models and they only argued for models that only included positive method effects. Marsh (2010) expanded on these studies by adding more structural models to their assessment and contrasting models that only included one method effect with those that included both method effects. The positive and negative factors were assessed jointly as well as separately and their findings showed that the model that best fit their data was the one that had a global self-esteem factor with method effects associated with both the negatively and positively worded items (Marsh et al., 2010).

More recent studies have also found the simple unidimensional model to be overly simplistic (e.g., Gana et al., 2013; Huang & Dong, 2013). Although they agree that the one-factor solution is best, they also agree that models that include method effects outperform the simple one-factor solution and the two-factor solution (Corwyn, 2000; Franck, De Raedt, Barbez, & Rosseel, 2008; Huang & Dong, 2012; Pullman & Allik, 2000; Quilty et al., 2006; Supple et al., 2013; Thomas & Oliver, 1999; Tomás et al., 2015).

2.2.2 Bidimensional factor structure of the RSES

A number of factor analytic studies produced findings that brought the initial conceptualization of the RSES as a unidimensional scale into question (Ang et al., 2006; Greenberger et al., 2003; Owens, 1993, 1994; Roth et al., 2008). These researchers have conducted factor analysis of the 10-item RSES and their results have suggested that the scale reflects a bidimensional construct encompassing positive and negative self-images. The positive component: positive self-worth, includes the degree to which one believes in one's own capacities, moral worth or virtue. While, the negative component: self-deprecation is the degree to which one underestimates his/her own worth and efficacy (Owens, 1994).

Owens (1994) used exploratory and confirmatory factor analysis to test the bidimensionality of the RSES. This study attended to the theoretical reasons underpinning bidimensionality by comparing the structure of global self-esteem with that of self-deprecation and self-confidence. The EFA findings demonstrated two, unambiguous factors: self-confidence and self-deprecation. The CFA explored dimensionality more explicitly and more conclusively, assessing whether a one factor model in which all self-esteem items are forced to load on a single construct fit the data better than a two-factor model in which positive and negative self-evaluations are estimated as separate constructs. The results showed that the unidimensional model had a poor fit to the data, while the bidimensional model displayed a good fit to the data. Overall, the study found strong empirical evidence that supported the bidimensional self-esteem model (Owens, 1994). A validation study of the RSES done by Ang et al. (2006) using 153 students from Singapore produced similar results, leading the researchers to conclude that the RSES is indeed a bidimensional scale.

Greenberger et al. (2003) proposed that the bidimensional structure of the RSES is a result of the item-wording of Rosenberg's original scale. To test this, they created a revised negative version of the RSES and a revised positive version meaning the revised items would be uni-directional in their assessment

of self-esteem. The results of the study suggested that the bidimensional factor structure of the RSES found by some researchers when using the original version of the RSES is an artefact of the negative and positive item-wording used in the scale. When the wording of the original scale was altered and the items were written in a constant direction so that all the items in the scale are either positive or negative, the results indicated that the scale is unidimensional. Their results therefore provided evidence that the two-factor structure of the RSES is an artefact of the negative and positive item-wording (Greenberger et al., 2003).

2.2.3 Three factor solution

The first indication of a possible three-factor solution of the RSES came from a confirmatory factor analysis of data collected in Rosenberg and Simmons' (1971) study of teenagers in a Baltimore public school. The CFA yielded results that suggested that a three-factor structure was a satisfactory fit for that data (Alwin & Jackson, 1981). Corwyn (2000) refers to these three factors as 'self-positive', 'self-negative' and 'social comparison', noting that the social comparison factor consists of the only two items that require one to compare themselves with others. In addition to this, he motivates for this third factor, citing Rosenberg's principle of "social comparisons" which is said to influence one's self-esteem when one assess oneself in relation to others. However, Corwyn (2000) cautions against making direct comparisons between the original RSES and the one used in Rosenberg and Simmon's (1971) study, as there are slight differences in the item wordings of the two scales.

This structure has been widely neglected in the RSES literature, however; some studies done in East European countries (see Blatný et al., 2006; Halama, 2008) and in West Europe (e.g., Gana et al., 2013) have explored and supported the three-factor solution. Similar to the findings of Alwin and Jackson (1981), scholars from the Czech Republic like Blatný et al. (2006) identified the

three-factor solution as the best fitting solution for their data. These scholars attributed their findings to the culturally motivated tendency of the Czech adolescents to have a higher dependence on the opinions of others. However, a subsequent study of the structure of the RSES among Czech adolescents presented findings that supported a one-factor solution with correlated uniqueness of the negatively worded items. Although the three factor solution adequately fit the data, it was not the best fitting model (Halama, 2008).

The three-factor solution has also been explored in more recent studies (see Gana et al., 2013; Vasconcelos-Raposo et al., 2012). In a study done on a young, Portuguese sample aged 15-20, Vasconcelos-Raposo et al. (2012) included the three-factor solution among the models that they assessed. Their findings indicated that the three-factor solution was an adequate fit to the data and revealed better adjustment in comparison to competing models such as the two-factor solution. Gana et al. (2013) examined the structure of a non-English version of the RSES using an elderly French sample. Their findings showed that the RSES consists of three-factors i.e., a self-esteem factor and two method factors.

2.2.4 Hierarchical and Bifactor factor solutions

The three factor solution discussed above has also been interpreted as a bifactor model (see, Alessandri, Vecchione, Donnellan, & Tisak, 2013) which, together with the hierarchical model, is starting to be studied more in RSES literature. Shavelson et al. (1976) formulated a hierarchical multi-faceted model of self-concept. An in-depth study of literature pertaining to self-concept and related constructs led them to formulate this hierarchical model. It comprised of a first order general factor made up of four factors which were represented on the second level of the model. The general factor was influenced by, and in turn influenced, the second level factors. Fleming and Courtney (1984) later used this hierarchical multi-faceted model of self-concept as the basis of their

analysis of the RSES structure. Their study provided support for a hierarchical interpretation of self-esteem and formed the basis for a hierarchical conceptualisation of the construct.

The hierarchical and bifactor solutions have gained momentum in the RSES literature in recent years, partly due to the advent of scholars who have provided empirical evidence that support these models in the evaluation of multidimensional constructs (e.g., Chen, et al., 2012; Chen, West, & Sousa, 2006; Reise, 2012). They have also been endorsed as alternative, less restrictive models for investigating the factor structure of instruments composed of items with many cross-loadings (Wiesner & Schanding, 2013).

Scholars (i.e., Alessandri et al., 2013; Alessandri et al., 2015; Donnellan et al., 2016; McKay et al., 2014; Michaelides et al., 2016) who have tested the bifactor solution in their assessment of the RSES structure have generally found it to be the best fitting solution of all the assessed models. These studies were done in European countries such as Germany (Michaelides et al., 2016), Italy (Alessandri et al., 2013; Alessandri et al., 2015), the United Kingdom (McKay et al., 2014), and one was done in Southwestern United States (Donnellan et al., 2016).

Although both the hierarchical and the bifactor solution are tested, the bifactor model has generally done better than the hierarchical solution in these studies. In the McKay et al. (2014) study, the bifactor solution was found to be the best solution for the RSES. However, although the bifactor model did well, they still concluded that the unidimensional model was a reasonable approach to scoring the RSES. This conclusion was informed by the fact that the items loaded substantially on the general factor and these loadings were greater than the loadings on the method factors for 8 of the 10 items (Donnellan et al., 2016). Similar findings were seen in a study done by Michaelides et al. (2016). The hierarchical solution was also explored in the McKay et al. (2014) study,

however it only presented moderate fit indices that did not meet the recommended criteria.

Research findings therefore support the bifactor solution of the RSES, suggesting that the structure of the RSES actually consists of one substantive factor and two specific factors related to positive and negative wording.

2.2.5 Relationship between self-esteem and self-efficacy

Self-esteem and self-efficacy are two important self-constructs that are of wide interest in psychological research. Bandura (1977) introduced the construct of self-efficacy after obtaining evidence from empirical research showing that self-efficacy beliefs make a difference in people's feelings and thought processes. Self-efficacy according to Bandura (1994), is defined as one's beliefs about their ability to sufficiently perform at a level where they can influence the events that occur in their lives, therefore, it is about one's sense that they have some control over their life (Schwarzer, Babler, Kwiatek, Schroder, & Zhang, 1996). In addition to influencing one's feelings and thoughts, self-efficacy beliefs make a difference in one's level of motivation and the way in which one behaves (Bandura, 1994). Self-efficacy beliefs are said to influence the abovementioned aspects of one's life through four major processes i.e., through cognitive, motivational, affective and selection processes (Bandura, 1994).

According to Bandura's social cognitive theory, human motivation and actions are largely influenced by forethought. The major factor for influencing behaviour is perceived self-efficacy, which is characterized as being competence based, prospective, and action-related (Luszczynska, Scholz, & Schwarzer, 2005). Having a great sense of self-efficacy places one in a better position to accomplish great achievement due to the fact that a strong sense of self-efficacy enhances one's belief in their ability to tackle and exercise mastery over difficult issues (Bandura, 1994). Because self-efficacious people believe

they are competent enough to solve a problem, they are more likely to take the steps that are necessary to solve that problem and remain committed to their decision until they achieve the desired outcome (Schwarzer et al., 1996). In fact, self-efficacious people have an affinity for challenging tasks and they tend to set high goals for themselves which they commit to and achieve. In instances when the goal seems to be too difficult to reach, they are more likely to increase the amount of effort they put into overcoming the obstacle rather than giving up. This type of attitude also helps them in threatening situations as they tend to be confident in their abilities to effectively deal with the situation which translates to reduced levels of stress and a lower risk of depression (Bandura, 1994; Schunk & Pajares, 2009). Conversely, people who have low self-efficacy struggle to handle challenging situations due to the fact that they doubt their capability to adequately deal with them. They also tend to give up quickly if they perceive the situation to be a challenging one that might lead to failure. This kind of outlook places them at the risk of increased stress levels and increased susceptibility to depression (Bandura, 1994; Schunk & Pajares, 2009).

Self-efficacy is a multidimensional construct and although the basic idea is the same, there are some nuances brought about by the context in which it is being assessed. Self-efficacy in the academic context refers to the student's belief in their academic capabilities such as their beliefs about their ability to study, master the academic content and perform well (Zajacova, Lynch, & Espenshade, 2005). In the work or organisational setting, it is about the employee's belief in their ability to perform well in the position that he/she occupies, it is said to have high positive correlations with the efforts and perseverance of the employee, especially in tough tasks (Malhotra & Singh, 2016). Distinguishing between the various dimensions of self-efficacy is especially important in the selection of the appropriate instrument to use for its measurement. For example, when attempting to investigate academic self-efficacy, one cannot use a general self-efficacy scale (Zajacova et al., 2005). The importance of distinguishing between the various dimensions of self-

efficacy lies in the fact for example that while academic self-efficacy has been shown to increase academic motivation, persistence and achievement (e.g., Komarraju & Nadler, 2013), generalised self-efficacy has less associations with these outcomes. The two dimensions are therefore distinct and should be identified as such (Zajacova et al., 2005).

The measurement instrument used to assess self-efficacy in this study is Sherer et al.'s (1982) General Self-Efficacy Scale (SGSES) which measures general self-efficacy. Bandura (1977) identified three dimensions that are thought to form part of general self-efficacy. These are: a) magnitude, which is one's beliefs about one's performance in increasingly difficult aspects of a task, b) strength, which is the effort one places in maintaining behaviour in spite of the obstacles faced and c) generality, which is concerned with the broadness of the applicability of the belief. The self-efficacy theory posits that there are two types of expectancies that significantly affect behaviour: 1) outcome expectancies, these are one's belief that certain behaviours will lead to certain outcomes; and 2) general self-efficacy, which is one's belief that they are capable of performing behaviours that will lead to this outcome (Sherer et al., 1982).

Self-efficacy is associated with self-esteem, depression, anxiety and helplessness. Given that self-efficacy relates to one's belief in their ability to successfully perform a given task, one's success or failure to perform a task that they believed they were capable of performing may have some bearing on the person's self-evaluation. Therefore, if one's value judgement of themselves is based on their performance in a certain task, failing to successfully perform that task may have an impact on their self-esteem (Bandura, 1997; Haijoo, 2014). Based on Bandura's theories about the association between self-efficacy and self-esteem, some authors have investigated the relationship between the two constructs. In a study by Imam (2007), it was found that individuals with low self-efficacy also tend to have low self-esteem, in addition

to pessimistic thoughts and feelings about themselves, their development and achievements (Imam, 2007).

Similarly, individuals with high self-efficacy generally also have higher self-esteem (Imam, 2007). This also seems to be the case in the educational context where students who have high self-esteem also tend to have higher self-efficacy. These students would often want to be in groups of other high performing students because they are more confident in their ability to perform at the same level as these high performing groups of people. Likewise, it has been found that students who have low self-esteem are likely to surround themselves with groups who have fewer skills due to their lower self-efficacy levels (Farajpour et al., 2014). In terms of predictive abilities, Hermann (2005) suggests that high self-efficacy predicts high self-esteem and low self-efficacy predicts low self-esteem. However, the same cannot be said about the predictive abilities of self-esteem as research has shown that self-esteem, although associated with performance, does not predict it (Bandura, 1997; Mone, Baker, & Jeffries, 1995). The items that are said to contribute to the relation found between self-esteem and self-efficacy, specifically when the RSES is the measurement instrument used, are items 3, 4, 5, 7, and 9. These items, according to Roth (2008), represent self-competence evaluation constructs that are related to Bandura's general self-efficacy concept (Mannarini, 2010)

Although most studies that have looked at the relationship between self-esteem and self-efficacy have been consistent in the assertion that there is indeed a significant positive correlation between the two, McKenzie (1999) found no statistically significant correlation between self-esteem and self-efficacy scores for middle school students. This is contrary to the findings of Haijoo (2014) who found a significant positive correlation between self-esteem and self-efficacy in undergraduate psychology students in Iran.

The functioning of the RSES in relation to external variables such as self-efficacy is therefore important in investigating the construct validity of the scale. Empirical evidence showing a significant positive relationship between the RSES and the SGSES would provide proof of the convergent validity of the scale. This finding would be in agreement with theories about the relationship between the two constructs (Mannarini, 2010; Roth et al., 2008).

2.3 **Conclusion**

In this chapter, the theoretical underpinning of the study was discussed and a literature review of the dimensionality of the RSES was given. The chapter ended with a discussion about the relationship between self-esteem and self-efficacy.

CHAPTER 3

METHODOLOGY

3. Introduction

This chapter gives a description of the research methodology, the research design and the procedure. The participants are described and the sampling method is also covered, the chapter also includes a description of the instruments used to gather the data, ethical considerations and a conclusion.

3.1 Research design

This study followed a quantitative research methodology with a cross-sectional survey design. The factor structure of the RSES and the relationship between self-esteem and self-efficacy are explained using mathematically based methods such as factor analysis (Babbie, 2010). This method takes an empirical quantitative perspective to research, where a hypothesis is tested and a conclusion that may be generalized to the defined population is drawn (Lietz & Zayas, 2010).

3.2 Participants

This study is a secondary analysis of a portion of the data previously collected in 2013 as part of a larger research study on depression in South African university students. Permission to use this data (for this mini-dissertation) was obtained from the primary researcher. A purposive sample of 304 was drawn for this study from both the University of Limpopo and University of Pretoria in South Africa. Eighty-five (28%) of the participants who returned their questionnaires were from the University of Limpopo and two hundred and eighteen (71.7%) were from the University of Pretoria. All the participants were undergraduate students between the ages of 18 and 50 with a mean age of

21.66 (SD = 3.49). Only 303 participants indicated their race, 145 (47.7%), of these participants were Black, 10 (4%) were Coloured, 9 (3%) were Asian and 139 (45.7%) were White. Males comprised 22% (n = 67) of the sample and 77.6% (n = 236) of the sample was female. The mean score of the sample on the total RSES was 33.12 (SD = 4.65). Permission to recruit the students was obtained from both these institutions prior to the commencement of the recruitment process. The following were the inclusion criteria: 1) undergraduate university students, 2) good command of English, 3) predominantly White university and predominantly Black university and 4) Age (\geq 18 years old). Sampling from the institutions ensured that we had a heterogeneous sample (i.e., race and socio-economic status) which also approximated samples used in previous studies on self-esteem and self-efficacy (see Farajpour et al., 2014).

There are various guidelines regarding the appropriate number of participants to use when conducting factor analysis. The most commonly cited guidelines are those of Gorusch (1983) who stated that 100 is the minimum acceptable number and Comfrey and Lee (1992) who provided a scale of sample adequacy i.e.: 50- very poor, 100-poor, 200-fair, 300-good, 500- very good, and 1000 or more-excellent (Pearson, 2008). Some researchers have suggested the utilisation of ratios for sample selection, Cattell (1978) proposed three to six subjects per variable while Gorusch (1983) proposed that the ratio should be at least five. According to MacCallum, Widaman, Zhang, and Hong (1999), the above mentioned guidelines can be misleading as they do not take all the complex dynamics of factor analysis into account. These researchers were able to demonstrate that a higher communality (i.e. > 0.60) combined with factors defined by many items meant that the sample size could be relatively small. Other solutions that do not require a large number of participants are solutions with correlation coefficients that are greater than 0.80 (Williams, Brown, & Onsmann, 2012). Therefore, regulations regarding the appropriate sample size for factor analysis vary greatly, however a sample size of 304 would be deemed acceptable for factor analysis according to all the above-mentioned guidelines.

3.3. Research instruments

The data was collected using three instruments: a demographic questionnaire, the RSES and Sherer et al.'s (1982) General Self-Efficacy Scale (SGSES).

3.3.1 Demographic questionnaire

In the demographic questionnaire, all participants indicated their age, gender, ethnic identification, and socio-economic status.

3.3.2 RSES

The RSES (Rosenberg, 1965) is a 10-item measure of self-worth using both positive and negative feelings towards the self (Cai, Brown, Deng, & Oakes, 2007; Supple et al., 2013). In the original version of the test, half of the items are positively worded (e.g., On the whole, I am satisfied with myself), and the other half are negatively worded (e.g., At times I think I am not good at all) (Wongpakaran & Wongpakaran, 2012). These items are all answered in a 4-point Likert-type scale, ranging from "strongly agree" to "strongly disagree" (Cai et al., 2007). Westaway et al. (2002) reported that the internal consistency reliability of the RSES for South Africans ranges between 0.78 and 0.92. In the current study, the RSES had a high internal consistency of $\alpha = 0.81$.

3.3.3 SGSES

The SGSES is the most widely used measure of self-efficacy (Chen, Gully, & Eden, 2001; Sherer et al., 1982). It is a 17-item Likert-type scale whose sum of item scores reflects general self-efficacy. The items are answered on a 5-point scale ranging from 1 = strongly disagree to 5 = strongly agree. A higher total score on the scale is an indication of a more self-efficacious respondent (Imam,

2007). Chen et al. (2001) found a moderate to high internal consistency for the SGSES ($\alpha = 0.76$ to 0.89) in two of their studies where samples of students and managers were assessed. The reliability of the scale in the current study was acceptable at 0.56 .

3.4. Procedure

The current study made use of secondary data that was collected as part of a larger study of depression in 2013. The sample was made up of students who were recruited from the undergraduate classes of the University of Pretoria and the University of Limpopo. After getting permission to access students from both universities, the students were recruited and the purpose of the research was clearly explained to them. These students were given specific instructions on how to complete the questionnaires prior to the commencement of the study and they had to consent to being part of the study. Upon completion of the consent forms, the above-mentioned questionnaires were administered to the students in group settings. The questionnaires were completed in English. There was no payment given to the students for their participation in the research and the students were debriefed at the end of the data collection sessions.

3.5. Ethical considerations

The research and ethics committees of both the University of Limpopo and the University of Pretoria ethically cleared the study. Students gave both oral and written consent to participate in the study. Participation was voluntary and confidential, and the participants were informed of their right to withdraw from the study whenever they so wished without any consequences. The data was securely stored for archiving and reuse for further research and/or data analysis and the participants consented to the data being reused for further studies by other researchers.

3.6. **Conclusion**

This chapter provided information about the research design, the participants used and the study procedure as well as ethical considerations.

CHAPTER 4 RESULTS

4. **Introduction**

This chapter encompasses the data analytic techniques employed for this study, the results and interpretations thereof.

4.1 Data analysis strategy

The data was analysed using SPSS windows 24.0 programme. Preliminary analysis included determining the sample and data characteristics by running descriptive statistics (e.g., mean, standard deviation, frequencies and percentages, kurtosis and skewness, correlation matrix, Kaiser-Meyer-Olkin measure of sample adequacy and missing values). This was done to ensure that no assumptions underlying exploratory factor analysis were violated and to address the second research question. This was followed by determining the internal consistency of the RSES. Five items (i.e. item 2, 5, 6, 8, & 9) of the RSES were reverse scored.

To achieve the first objective, exploratory factor analysis was conducted on the RSES using principal component analysis (PCA) with Varimax rotation. A series of steps were taken to determine if the data was suitable for analysis. The Kaiser-Olkin measure of sample adequacy (KMO) value was checked together with the Bartlett test of sphericity value. According to Williams et al., (2012), a KMO value of 0.5 is considered acceptable for factor analysis and the Bartlett test of sphericity should be significant (i.e. $p < 0.5$). The correlation matrix was also inspected for correlations that are equal to 0.30 or greater, because this is necessary in order to determine whether the data is suitable for factor analysis (Tabachnick & Fidell, 2007).

The number of components was determined using the MAP (Velicer, 1976). Following O'Connor's (2000) methods for running this procedure in SPSS, this test was used prior to the principal components extraction to statistically determine the number of components to extract. This is in addition to standard criteria for factor selection, which includes a) the Kaiser-Guttman rule (i.e.,

factors with eigenvalues of ≥ 1.0), b) the scree plot, c) cumulative and unique per cent of explained variance, and d) theory and previous factor structure findings. The MAP allow for objective, statistically based decision-making and are considered to be the most accurate methods for determining the number of components to retain over the traditionally used eigenvalue-greater-than-one or scree test approaches (Zwick & Velicer, 1986). Velicer's (1976) MAP test emphasises the relative amounts of systematic and unsystematic variance remaining in a correlation matrix after extractions of increasing numbers of components.

To achieve the second objective, the correlation between self-esteem and self-efficacy was examined. According to theory and previous research (e.g., Imam, 2007), there should be a positive correlation between self-esteem and self-efficacy. Therefore, the self-efficacy scores were expected to positively correlate with the self-esteem scores in the current study.

4.2 Presentation of results

4.2.1 Preliminary analysis for PCA

The skewness and kurtosis values of the variables indicated that the data distribution was non-normal, the variables reached skewness values that were less than -2 and kurtosis values that were greater than 2. However, other analysis used to determine the favourability of the data indicated that the data was suitable for factor analysis. The KMO value for the whole scale was meritorious at 0.86 and > 0.8 for the individual variables. The Bartlett test for sphericity value was significant and less than the critical level of significance at 0.000. Furthermore, most of the observed values in the correlation matrix were 0.3 and above. These observations indicate that the data could be used to extract factors.

4.2.2 *Factor structure of the RSES*

MAP indicated that one component should be retained (see figure 1). For instance, the Velicer's MAP (2000) test revealed that the one component solution resulted in the lowest average squared correlation of $r^2 = 0.032$. The PCA yielded variance discontinuities that also suggested one latent factor. Read together, the results were most suggestive of a one component solution. The one factor accounted for 41.07% of the variance, with an eigenvalue of 4.107. This latent structure is also congruent with the established factor solution of the RSES in the extant literature (e.g., Maluka & Grieve, 2008; Westaway & Maluka, 2005). Table 1 presents the component matrix, providing the factor loading of each item on the RSES.

Table 1:
Component matrix for the PCA of RSES

	Principal components
	<i>Self-esteem</i>
Variance explained	41.07%
Eigenvalue	4.10
Item descriptor	
RSES 1	0.68
RSES 2	0.67
RSES 3	0.73
RSES 4	0.69
RSES 5	0.58
RSES 6	0.57
RSES 7	0.67
RSES 8	0.30
RSES 9	0.68
RSES 10	0.72

4.2.3 *Construct validity of the RSES*

To achieve the second objective, which is to examine the association between self-esteem and self-efficacy, a correlation analysis was examined between the RSES and SGSES. The results show a significant positive correlation between the variables/two measures ($r = 0.256$; $p < 0.01$) (see table 2). This result indicates that there is a mutual relationship between self-esteem and self-efficacy, therefore individuals with higher self-esteem scores would also have higher self-efficacy scores and vice versa. The statistical significance of this correlation ($p < 0.01$) indicates that the probability that this correlation was obtained by chance is very low, less than 1 out of 100.

Table 2: Correlation between RSES and GSES

	RSES	GSES
RSES	1	0.256**
GSES	0.256**	1

** $p < .01$

4.3 Conclusion

This chapter covered the data analysis plan; the results of the study were also presented and interpreted.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5. Introduction

In this chapter, the results of the study are discussed followed by recommendations and limitations. The chapter then ends with a conclusion.

5.1 Discussion

Self-esteem is an integral part of one's functioning, contributing to one's mental health, psychological well-being and even to one's performance in various aspects of their lives (Aryana, 2010; Ferris et al., 2010; Kususanto & Chua, 2012; Rosli et al., 2012). To date, the RSES remains the most widely used scale in self-esteem research across many cultural settings. Contributing to this is the fact the RSES was developed according to a recommended strategy of scale development which states that the scale needs to be balanced, meaning it should consist of an equal number of positively and negatively worded items (Alessandri et al., 2013; Marsh, 1996). This is advantageous and is encouraged in psychological scales as it reduces the possibility of obtaining consistently high or consistently low scores solely as a result of acquiescence bias. However, having negatively worded items has also contributed to the ongoing debate about the dimensionality of the RSES (Alessandri et al., 2013). Although various studies have been conducted to address the debate surrounding the dimensionality of the scale (e.g., Alessandri et al., 2015; Ang et al., 2006; Boduszek et al., 2012; Maluka & Grieve, 2008; Schmitt & Allik, 2005), the inconsistencies in their findings warranted further investigation in the South African setting.

This study sought to determine the construct validity of the RSES among university students. The analysis generated a single factor structure of the RSES. This single factor structure supported the premise that the RSES is a unidimensional scale that measures one's overall attitude towards oneself. The single-factor structure apparent in our findings is also consistent with most of the international literature on the RSES reporting that self-esteem is represented by a unitary latent construct (i.e. Corwyn, 2000; Huang & Dong, 2012; Pullman & Allik, 2000; Quilty et al., 2006; Schmitt & Allik, 2005; Supple et al., 2013; Thomas & Oliver, 1999; Tomás et al., 2015; Vasconcelos-Raposo et al., 2012). Furthermore, our findings confirm the dominant factor structure findings established in South Africa (e.g., Maluka & Grieve, 2008; Westaway et al., 2015; Westaway & Maluka, 2005).

However, the results established in this current study, are contradictory to some of the studies on the dimensionality of the scale. Some of this alternative literature reports self-esteem to be represented by two latent factors; namely, positive self-esteem and negative self-esteem (e.g., Ang et al., 2006; Owens, 1993, 1994; Roth et al., 2008), while others view it as representative of three factors which are named 'self-positive', 'self-negative', and 'social comparison' factors, respectively (e.g., Alwin & Jackson, 1981; Blatný et al., 2006; Gana et al., 2013; Vasconcelos-Raposo et al., 2012). Alessandri et al. (2013) offers an alternative interpretation of the three factors, stating that they can be interpreted as a bifactor model consisting of a general factor and two method factors. This idea of the factor structure of the RSES transcending the widely debated one-factor and two-factor structures started to be explored after Flemming and Courtney's (1984) hierarchical interpretation of self-esteem. Using this hierarchical interpretation, some studies done in Europe and some American countries have investigated other models and found that the RSES may actually be subsumed by a hierarchical and bifactor structure (i.e. Alessandri et al., 2013; Alessandri et al., 2015; Donnellan et al., 2016; McKay et al., 2014; Michaelides et al., 2016).

The above-mentioned multidimensional solutions could be interpreted as meaningful solutions that represent various dimensions of self-esteem which essentially means they would have to be scored separately (Alessandri et al., 2013; Furr, 2010). However, further investigation of the various factors would need to be done. According to Furr (2010), the correlation between these factors would provide the basis for the interpretation of these various factors as distinct psychological variables or as a result of method effects. Findings from various studies have stressed the importance of accounting for these factors whenever the RSES is being utilized (e.g., Corwyn, 2000; Marsh et al., 2010; Supple et al., 2013).

The second objective of this study was to look at the convergent validity of the RSES. This was done by analysing self-esteem's association with self-efficacy. The relationship between self-esteem and self-efficacy is well-established in the literature. Many studies done in various contexts have consistently shown these two constructs to be significantly positively correlated (e.g., Afari, Ward, & Swe, 2012; Ang et al., 2006; Chen, Gully, & Eden, 2004; Farajpour et al., 2014; Haijoo, 2014; Imam, 2007; Karademas, 2006; Potgieter, 2012; Roth et al., 2008; Thomas & Wagner, 2013). The significant positive correlation found in the current study is therefore not only consistent with findings from international literature (e.g., Afari et al., 2012; Ang et al., 2006; Chen et al., 2004; Farajpour et al., 2014; Haijoo, 2014; Imam, 2007), but also with findings from South African studies (e.g., Potgieter, 2012; Thomas & Wagner, 2013; van den Hof, 2015).

African cultures are assumed to be more collectivist compared to western cultures (Triandis, 1995). To demonstrate this collective inclination within the South African context, Eaton and Louw (2000) conducted a study that provided evidence that South African cultures also tend to be collectively inclined. Cross-cultural theory posits that there is a distinction between collective and

individualist cultures in that individualistic cultures place more emphasis on internal sense of personal worth, efficacy and control than the collective cultures (Markus & Kityama, 1994). Given this theory, it would be expected that in this context, there would be a negative relationship between the two constructs or no relationship at all. However that was not the case and these findings seem to challenge the extent of the collective inclination of South African cultures. Westaway et al. (2015) states that this findings may be due to the effects of acculturation, rapid urbanisation and globalisation. It is therefore possible that collectivist cultures are restricted to more rural areas of South Africa rather than the more urban settings (Naidoo & Mahabeer, 2006). This study was conducted in two university localities with students from all parts of the country, it is possible that the students involved in the study were more urbanised and had higher regard for issues regarding the self.

In conclusion, the significant positive association between the two measures found in the current study provides evidence of the convergent validity of the RSES. Convergent validity relates to evidence that an instrument significantly correlates with another instrument that it should theoretically correlate with (Duckworth & Kern, 2011). According to Bandura's (1997) self-efficacy theory, as well as empirical studies done on the relationship between self-efficacy and self-esteem (e.g., Haijoo, 2014; Imam, 2007), there is a significant positive relationship between these two constructs. Evidence of the significant positive relationship between the RSES and the SGSES is therefore further affirmation of the utility of the RSES within the South African university context. The factor solution findings and the findings of the significant positive relationship between self-esteem and self-efficacy, provided evidence of the construct validity of the RSES within the South African university context.

5.2 Recommendations

Although PCA produced a conceptually meaningful factor structure of the RSES, the technique is not fit to explore competing structures of the RSES. Future studies looking at the psychometric properties of the RSES within a similar population could therefore go further and use CFA to investigate competing structures of the scale. This would provide a stronger basis for the conclusion regarding the factor structure of the scale within this group. Researchers interested in the construct validity of the scale on a similar sample or otherwise should also assess for the discriminant validity of the scale for completeness. The study also needs to be replicated using a different population other than a university student population.

5.3 Strengths of the study

The strength of this study lies in that it is a relevant psychometric study that adds to literature concerning a long-debated issue about the dimensionality of the RSES. Moreover, the study makes use of more sophisticated statistical methods to determine the number of factors to extract.

5.4 Limitation of the study

A limitation of this study is that PCA, which is a limited analytic technique in itself, was the only data reduction method used to assess the structure/latent components of the RSES. Furthermore, it must also be highlighted that the results of this study can only be generalised to student samples but they cannot be assumed to apply to other populations that were not explored in this study.

5.5 Conclusion

This chapter discussed the findings of the study, gave recommendations for future research and provided possible limitations of the study.

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APPENDICES

Appendix A: Questionnaire

**Appendix B: Information for participants, consent form and ethical clearance
from the Universities of Pretoria**

Below is a list of statements dealing with your general feelings about yourself. Please indicate your level of agreement or disagreement with each statement by crossing the appropriate box.

Strongly Agree-**SA** Agree-**A** Disagree-**D** Strongly
 Disagree-**SD**

1. On the whole, I am satisfied with myself.	SA	A	D	SD
2. At times I think I am no good at all.	SA	A	D	SD
3. I feel that I have a number of good qualities.	SA	A	D	SD
4. I am able to do things as well as most other people.	SA	A	D	SD
5. I feel I do not have much to be proud of.	SA	A	D	SD
6. I certainly feel useless at times.	SA	A	D	SD
7. I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8. I wish I could have more respect for myself.	SA	A	D	SD
9. All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10. I take a positive attitude toward myself.	SA	A	D	SD

Below are statements that represent your beliefs about yourself. Please read each statement and indicate the extent to which each statement describes you by circling the extent to which you agree or disagree with the statement.

Strongly agree-1 Moderately agree-2 Neither agree/disagree-3
 Moderately agree-4 Strongly disagree-5

1. When I make plans, I am certain I can make them work.	1	2	3	4	5
2. One of my problems is that I cannot get down to work when I should.	1	2	3	4	5
3. If I can't do a job the first time I keep trying until I can.	1	2	3	4	5
4. When I set important goals for myself, I rarely achieve them.	1	2	3	4	5
5. I give up on things before completing them.	1	2	3	4	5
6. I avoid facing difficulties.	1	2	3	4	5
7. If something looks too complicated, I will not even bother to try it.	1	2	3	4	5
8. When I have something unpleasant to do, I stick to it until I finish it.	1	2	3	4	5
9. When I decide to do something new, I go right to work on it.	1	2	3	4	5
10. When trying to learn something new, I soon give up if I am not initially successful	1	2	3	4	5
11. When unexpected problems occur, I don't handle them well	1	2	3	4	5
12. I try to avoid to learn new things when they look too difficult for me.	1	2	3	4	5
13. Failure just makes me try harder.	1	2	3	4	5

14. I feel insecure about my ability to do things	1	2	3	4	5
15. I am a self-reliant person	1	2	3	4	5
16. I give up easily	1	2	3	4	5
17. I do not seem capable of dealing with most problems that come up in life	1	2	3	4	5

Part I:



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Psychology

INFORMATION FOR PARTICIPANTS

PROJECT TITLE: VALIDATION OF THE BDI-II IN SOUTH AFRICA

PROJECT LEADER: MAKHUBELA MALOSE SILAS

1. You are invited to participate in the following research project:

"VALIDATION OF THE BDI-II IN SOUTH AFRICA"

2. Participation in the project is completely voluntary and you are free to withdraw from the project (without providing any reasons or consequences) at any time.
3. It is possible that you might not personally experience any advantages during the project, although the knowledge that may be accumulated through the project might prove advantageous to others.
4. You are encouraged to ask any questions that you might have in connection with this project at any stage. The project leader and his staff will gladly answer your question. They will also discuss the project in detail with you.

5. There are no known consequences of completing a questionnaire about depressive symptomatology. However, individuals may react apprehensively; being sensitive to completing questions about situations that were not particularly comfortable for them.

6. Should you at any stage feel unhappy, uncomfortable or is concerned about the research, please contact the researcher (**Makhubela M.S**) at the University of Pretoria, tel: 012 420 2830.

Part II:



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Psychology

CONSENT FORM

PROJECT TITLE: VALIDATION OF THE BDI-II IN SOUTH AFRICA

PROJECT LEADER: MAKHUBELA MALOSE SILAS

I, _____ hereby voluntarily
consent to participate in the following project:

“VALIDATION OF THE BDI-II IN SOUTH AFRICA”

I realise that:

1. The study deals with the evaluation of the degree to which items or subtests of the Beck Depression Inventory-II (BDI-II) have equal meaning across groups of examinees in South Africa.
2. The Ethics Committee of the University of Pretoria has approved that individuals may be approached to participate in the study.
3. The research project, i.e. the extent, aims and methods of the research, has been explained to me.
4. The project sets out the risks that can be reasonably expected as well as possible discomfort for persons participating in the research, an explanation of the anticipated advantages for myself or others that are reasonably expected from the research and alternative procedures that may be to my advantage.
5. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation.

6. Access to the records that pertain to my participation in the study will be restricted to persons directly involved in the research.
7. Data will be stored according to the University's conditions (15 years) and will be reused for further research and/or data analysis.
8. Any questions that I may have regarding the research, or related matters, will be answered by the researcher/s.
9. If I have any questions about, or problems regarding the study, or experience any undesirable effects, I may contact a member of the research team.
10. Participation in this research is voluntary and I can withdraw my participation at any stage.
11. If any medical problem or distress is identified at any stage during the research, or when I am vetted for participation, such condition will be discussed with me in confidence by a qualified person and/or I will be referred to my doctor or the university student counselling unit.
12. I indemnify the University of Pretoria and all persons involved with the above project from any liability that may arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned persons.

SIGNATURE OF RESEARCHED PERSON

SIGNATURE OF WITNESS

SIGNATURE OF PERSON THAT INFORMED
THE RESEARCHED PERSON

Signed at _____ this ____ day of _____ 20__



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

27 May 2016

Dear Prof Maree

Project: The dimensionality of the Rosenberg Self-Esteem Scale (RSES) with South African Universities Students
Researcher: NLV Ndim
Supervisor: Dr MS Makhubela
Department: Psychology
Reference number: 29247692 (GW20160512HS)

Thank you for the application that was submitted for ethical consideration.

I am pleased to inform you that the above application was **approved** by the **Research Ethics Committee** on 26 May 2016. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

Prof Maxi Schoeman
Deputy Dean: Postgraduate Studies and Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

Kindly note that your original signed approval certificate will be sent to your supervisor via the Head of Department. Please liaise with your supervisor.

Research Ethics Committee Members: Prof MME Schoeman (Deputy Dean); Prof KL Harris; Dr L Blokland; Dr R Fasselt; Ms KT Govinder; Dr E Johnson; Dr C Panebianco; Dr C Puttergill; Dr D Reyburn; Prof GM Spies; Prof E Taljard; Ms B Tsebe; Dr E van der Klashorst; Mr V Sithole

Appendix C: Letter of permission to use the data



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Psychology

09 March 2016

Faculty of Humanities
Ethics committee

RE: Permission for my data to be used by Ms L. Ndima

This letter serves to confirm to the committee that I have given Ms Ndima permission to reanalyses/use my data for the purposes of her research mini-dissertation. Participants have consented to the reuse of the data for further studies and by other researchers.

Sincerely,

Dr Malose Makhubela
Lecturer

Humanities Building, Room 11 – 27
PRETORIA 0002
Republic of South Africa
Tel: 012 420 2830
silas.makhubela@up.ac.za
