

The effect of changes in group boundary permeability on the stereotype threat or lift effect

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Abstract

Stereotype Threat and Lift have been well established in demonstrating the effects that stereotypes have on task performance outcomes. However, these phenomena inadequately explain why not all ingroup members succumb to threat and lift effects alike. It also fails to account for additional social identities which may influence the stereotype-performance relationship. It is anticipated that Social Identity Theory's tenets of ingroup identification and group boundary permeability may have a great deal to offer in explaining stereotype effects. It is predicted that the stereotypes invoked would interact with perceptions of boundary permeability to bring about differential group identification patterns, which would influence stereotype threat and lift effects on task performance. Therefore, the research study at hand aims to apply Social Identity Theory to Stereotype Threat and Lift. The research question was operationalised by means of a factorial experimental design in which perceptions of group boundary permeability were manipulated and group stereotypes were invoked to manipulate group status. Thereafter, performance outcomes were noted. The findings indicate that group boundary permeability and group status influenced ingroup identification but not performance outcomes. Race played a large and unforeseen role in explaining many of the present findings. The results suggest strong reversals in expected performance outcomes, which could largely be explained by the effects of racial factors within the South African context, highlighting the importance of accounting for extra-experimental identities in stereotyped situations. Of key significance is that participants often responded strategically to stereotypes by engaging with extra-experimental identities and identity resources most likely to enhance performance outcomes.

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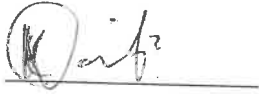
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Above all, it is by the grace of God that this dissertation has been possible.

Declaration

I declare that this dissertation is a product of my own work. Each significant contribution to, and quotation in this dissertation from the work, or works, of other people has been attributed, cited and, referenced.



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Chapter One: Introduction

1.1. Theoretical framework

Stereotype Threat proposes that a negative shift in performance can be expected at the activation of a negative performance-relevant stereotype (Steele & Aronson, 1995). Conversely, Stereotype Lift hypothesizes that a favourable change in performance will occur at the awareness of a positive stereotype about one's group (Walton & Cohen, 2003). Examples of such performance that can be impacted by relevant group stereotypes are: intellectual performance, math abilities, memory and recall, and athletic ability. Even though the empirical effects of Stereotype Threat and Lift have been well developed and established in the literature, these concepts lack a sound theoretical base in considering factors that may account for different performance outcomes and processes amongst ingroup members subject to the same stereotypes. A potential explanation for this gap could be that Stereotype Threat and Lift (STL) frequently underestimate the importance of extra-experimental identities and their influence on performance outcomes and processes. STL commonly assumes that individuals only engage with the social identity made salient in experimental contexts, hence neglecting the impact that extra-experimental identities could have in such situations. This is confirmed by Pittinsky, Shih, and Ambady (1999, p. 503) who state, "Most empirical work that examines the effects of stereotypes on targets considers only one of a target's social identities."

Consequently, this study aims to apply aspects of Social Identity Theory, which has been theoretically well established in the literature, to understand stereotype effects on performance abilities without neglecting that there are many possible social identities operating within individuals in performance settings. Social Identity Theory provides a framework for reinterpreting stereotype effects on performance by stipulating that social identities are rich phenomena which individuals engage (or disengage) with in a complex fashion with regard to performance in intergroup settings. This theory suggests that patterns, and levels, of identification with the ingroup and outgroup will influence the impact of group stereotypes on individual experience (Haslam, Salvatore, Kessler & Reicher, 2008). Ingroup identification is therefore predicted to influence STL effects on performance results. According to Social Identity

Theory, social identification with either the ingroup or outgroup is partially dependent on perceptions of group boundary permeability. That is, individuals would identify more or less intensely with a group if they believed that they could leave the group (Ellemers, van Knippenberg, de Vries & Wilke, 1988). It is therefore likely that perceptions of permeability may influence identification with the ingroup and outgroup and thereby amplify stereotype effects, resulting in varied stereotype responses and performance outcomes. This study aims to experimentally explore this possibility by applying Social Identity Theory to Stereotype Threat and Lift phenomena.

1.2. Significance of this study in a South African context

South Africa's socio-political history, namely colonialism and apartheid, have left widespread consequences that certainly continue to impact most South Africans. Amongst such consequences, and key to this study, are the effects of social stereotypes (both positive and negative) on cognitive performance abilities. South Africa is presently under social reformation aimed at uplifting previously denigrated social groups by facilitating social integration and a sense of group equity by convincing social groups that they are equally capable and similar in many respects. This sense of sameness is intended to blur the boundaries between traditionally majority and minority groups whereby individuals are convinced that they are able to easily move between these groups. The underlying assumption to such strategies is that vague (or completely absent) boundaries and perceptions of equality would certainly improve performance outcomes in traditionally marginalized groups. This study also explores whether fostering such perceptions of sameness and open groups would in fact improve performance outcomes as opposed to yielding detrimental performance. More specifically, by bringing together the effects of stereotypes on cognitive performance outcomes and perceptions of group boundary permeability (that is, open versus closed groups), the principal focus of this study is to explore the effects of group boundary permeability on stereotype effects with regard to performance outcomes on a measure of cognitive abilities.

1.3. Research aims and method

Therefore, the key focus of this study is to explore whether a change in perceptions of group boundary permeability would influence the stereotype threat and lift effects on task performance. Specifically, the following research questions will also be addressed: (1) Whether the STL effect is replicable in a South African tertiary education setting; (2) The degree to which individuals' identification with the social category (in this case, the institution) to which they belong influences STL effects; (3) The influence that perceptions of group boundary permeability (high or low) would have on STL effects.

A quantitative factorial experimental design was employed to explore these research questions. To operationalise the research problems, stereotypes were invoked to manipulate group status, resulting in a high status group (boost group) and low status group (threat group). The sample was further divided by manipulating perceptions of group permeability, resulting in high and low permeability groups. Hence, there were four conditions in this experiment in which each level of group status was crossed with each level of permeability.

The stereotypes invoked by this study pertained to the academic abilities of students attending tertiary institutions. Due to many preexisting stereotypes about the University of KwaZulu-Natal and Varsity College regarding academic advantages and disadvantages related to institution size and available facilities and resources it was envisaged that these institutions in particular would be useful in understanding STL effects. 100 students from Varsity College, Pietermaritzburg participated in this study. In line with Stereotype Threat and Lift, it was anticipated that task performance would either be boosted or depressed at the mention of the various stereotypes. And, in accordance with Social Identity Theory, it was predicted that the stereotypes invoked would interact with perceptions of permeability to bring about differential identification patterns which would influence the stereotype threat and lift effects on task performance.

Chapter Two: Literature Review

2.1. Background and history of stereotypes

The study of stereotypes has a long history in social psychology, with its conception dating back to the time of Lippman in 1922 (Lippman, 1922). Initially research on stereotypes focused primarily on the content of stereotypes. Subsequently, the focus was on the origins and functions of stereotypes (Tajfel, 1981). Thereafter, the shift was toward the cognitive processes involved in stereotyping, such as social categorization (Alexander, Brewer & Livingston, 2005; Tajfel, 1981). More recently, literature on stereotypes has focused on the effect that these stereotypes has on its recipients, with a specific focus on the threat or boost effect of stereotypes on various performance outcomes.

2.1.1. Defining stereotypes and its functions

Allport (1954, p. 187) states that a “.....stereotype is an exaggerated belief associated with a category used...to justify (rationalize) our conduct in relation to that category.” Schneider (2004, p. 24) agrees that stereotypes are “qualities perceived to be associated with particular groups or categories of people”, whilst Lippman (1922) suggests that stereotypes allow us to justify our own positions in society. Dunn (2005) adds that the content of stereotypes is in fact functions of prejudice and discrimination and perhaps this is how they serve to rationalize discriminatory behaviours. “Stereotypes have been described as the cognitive component of an attitude, prejudice the affective component, and discrimination the behavioral component” (Hackney, 2005, p. 197). Hilton and von Hippel (1996), on the other hand, note that stereotypes are merely beliefs or theories about another group and need not necessarily have a dark side to them. Thus, stereotypes may be of both a positive or negative nature and purpose. A positive stereotype implies a boost effect on individual experience whilst a negative stereotype may threaten individual performance.

Stereotypes serve the useful cognitive function of simplifying information and experiences with the environment and surrounding contexts. It is through the process of categorization and stereotyping that an individual organizes and understands social experiences, making social

contexts more accessible and familiar to them (Tajfel, 1981). Once social information and experiences are categorized, they are then generalized to further experiences with society. In this sense, stereotypes may often be erroneous. Nonetheless, they serve a useful function in that, in the face of perceptual chaos, they allow a person to classify and generalize from one experience and interaction to the next, facilitating a sense of order, predictability, and certainty about others and the world (Dunn, 2005).

Stereotypes, in a social sense, are frequently used motivationally as a discursive device of control to preserve certain ideologies (Schaff, 1984). Such stereotypes are more often inaccurate and irrational (Tajfel, 1981). This is not to say that stereotypes are always inaccurate. In fact the stereotype literature states that they are often a mental representation of reality as it is experienced (for example, Oakes, Haslam & Turner, 1994). But stereotypes inherently tend to exaggerate group differentiation whilst minimizing ingroup variation (Ford & Stangor, 1992). Schaff (1984) states that this is in fact a pragmatic function of social integration which stereotypes performs by creating cohesion within the ingroup. In order for an individual to belong to a group, it is expected that they adhere to the norms and belief systems of that particular group. So, in as much as stereotypes may have an element of truth to them, it is worth noting that they may also be a biased representation of reality. In addition, stereotypes can be employed as a cognitive or social tool.

Schneider (2004) and Hilton and von Hippel (1996) agree that stereotypes are not fixed and immutable; instead they are dynamic constructs capable of being updated and completely changed. Hunt, Seifert, Armenta, and Snowden (2006) believe that a change in stereotypes are consequent of new experiences and information, whereby such experiences may either reduce the biases associated with certain stereotypes or actually increase them. In this way, stereotypes are dynamic constructs which are able to adapt to changing social contexts. For example, gender stereotypes have evolved over time as more women entered typically masculine domains such as leadership positions in the workforce (Hunt *et al.*, 2006). Stereotypes are largely transmitted via societies and communities, which creates a particular problem in that individuals are less able to avoid and challenge them (Schaff, 1984). Hence, stereotypes are both contextually flexible and highly resistant to change.

Even though most authors seem to agree on the contextual roots and functional outcomes of stereotypes – such as cognitive structuring, behaviour justification, intergroup differentiation, and political control - there is no universal agreement over a definition for stereotypes. There does, however, seem to be a degree of consensus that stereotypes do serve a pragmatic function, are neither entirely inaccurate nor maladaptive, and may not necessarily be of a detrimental nature (Bartsch, Judd, Louw, Park & Ryan, 1997).

2.1.2. History of stereotypes and conceptualisations of cognitive performance in South Africa

South Africa's history of colonialism and apartheid has tremendously segmented society, causing great distance between social groups. This fostered the 'us' and 'them' mentality which provided a fertile foundation for stereotyping. Within the local context, race has always been the principal category of difference by which social interactions have mostly been negotiated and determined. South Africa, in particular, has a history of deliberately invoking racial stereotypes as a discursive tool of control to 'prove' that certain marginalized groups do not qualify for certain opportunities. In South Africa, non-black groups are stereotyped as being exploitative, intentionally oppressive, dominating, powerful, and threatening (Alexander *et al.*, 2005). Black Africans, on the other hand, are stereotyped as being irrational, hostile, destructive, out of control (Alexander *et al.*, 2005), uneducated, uncivil, criminal, excessively sexual, dangerous, and lazy (Niemann, Jennings, Rozelle, Baxter & Sullivan, 1994). Of particular interest to this study is the tendency to stereotype cognitive abilities and performance. As Tajfel (1981) and Hilton and von Hippel (1996) explain, the differentiation of groups also generally leads to a value differentiation in which the more dominant group is positively stereotyped, whilst the minority group is negatively stereotyped. Within the South African context there is a tendency to negatively stereotype the cognitive potential of black African groups whilst boosting that of the non-black African groups.

Also, consequent of the apartheid system's Bantu Education policy, there has been a tremendous difference in the quality of education received by black and non-black Africans. The dominant groups (non-black Africans) were afforded much higher levels of educational quality than their black counterparts. Despite the obvious reasoning that a substandard level of education would

result in poorer cognitive abilities and performance outcomes, the evident achievement gap between black and non-black Africans, in which black Africans displayed significantly lower intellectual capacities, has been attributed to innate intellectual inferiorities (Rushton, 2002). This line of reasoning becomes particularly problematic when employment opportunities and access to higher educational facilities are dependent upon such performance criteria (Mabokela, 2000).

Despite the demise of apartheid in 1994, recent research suggests that this unjust achievement gap is still evident (Rushton, 2002). Bearing in mind that performance outcomes largely determine success rates, it becomes a field in need of critical exploration. Even though it is beyond the scope of this study to explore the black/non-black achievement gap, it is acknowledged that research examining the effects of stereotypes on intellectual performance in a context with a long history of discrimination and prejudice is much needed. Due to the well researched field of the impact of stereotypes on performance outcomes, it became evident that a study examining such effects in a South African context would be worthwhile as a portion of the achievement gap may be attributed to STL effects.

2.2. The effects of stereotypes on task performance

As discussed above, stereotypes can either be positive or negative. According to Ambady, Shih, Kim, and Pittinsky (2001, p. 385), “The subtle activation of negative stereotypes significantly impeded performance, whereas the subtle activation of positive stereotypes significantly facilitated performance”. Most literature examining the effects of stereotypes on performance support this view (see, for example, Smith, 2004; Steele, 1999; Steele & Aronson, 1995; Walton & Cohen, 2003). The *negative* shift in performance due to the activation of a negative performance-relevant group stereotype is known as *stereotype threat* (Steele & Aronson, 1999). Conversely, a *favourable* change in performance resulting from the mention of a positive group stereotype is known as *stereotype lift*. (Walton & Cohen, 2003). Although ‘stereotype lift’ is often considered to be the result of an accessible downward comparison and ‘stereotype boost’ is considered to be the result of an accessible positive stereotype, the concepts are virtually identical and will be used interchangeably in this dissertation.

Therefore, depending on the connotations attached to certain stereotypes, it is expected to have either a threat or a lift effect on performance. Steele (2003) argues that STL will only occur if the stereotype is made salient and occurs in a setting in which the stereotype is relevant to the performance in question. And, one need not believe in, or endorse, a stereotype to be threatened or protected by it. Just the mere acknowledgement of the stereotype by others (Shapiro & Neuberg, 2007), along with group identification could lead to a shift in performance when the stereotype becomes relevant (Steele & Aronson, 1995). Aronson, Lustina, Good, Keough, Steele, and Brown (1999, p. 29) state that “to interfere with performance, stereotype threat requires neither a history of stigmatization nor internalized feelings of intellectual inferiority, but can arise and become disruptive as a result of situational pressures alone.” Leyens, Desert, Croizet, and Darcis (2000, p. 1191) agree that “... it is the fact of being a target of a negative stereotypic expectancy that triggers threat for group members and not the group’s historical social position (i.e., dominant or devalued).” Thus, STL is deemed a situational experience. STL supposedly: (i) brings about a predictable change in performance; (ii) will only occur if the stereotype is made salient; and (iii) occurs in a setting in which the stereotype is relevant to the performance in question.

2.3. Stereotype Threat (ST)

Stereotype threat is said to affect individuals who become aware of a negative task-related stereotype about their group, increasing the likelihood that they will perform worse at the task despite their potential to excel at it (Cheryan & Bodenhausen, 2000; Steele & Aronson, 1995). Research indicates that even when groups who are usually believed to be superior performers are told that there exists a negative stereotype about their group, they might actually perform worse than usual (Steele, 1999). Even if the task does not genuinely assess performance associated with the stereotype, the mere acknowledgement of the stereotype has been reported to depress performance (Steele & Aronson, 1995). It is experienced as a threat due to the targets of this stereotype being judged negatively and treated stereotypically, thereby confirming the stereotype (Steele & Aronson, 1995).

Instead of attributing underperformance to innate deficiencies or flaws characteristic of certain groups, ST adopts a situationist view by partly attributing a lack of success to negative social stereotypes associated with particular groups which are made present in performance situations (Aronson *et al.*, 1999). As such, ST constructively reframes performance deficiencies from being an individual or group malfunction to something which has been fostered by society via discrimination. Therefore, performance is assumed to be amenable to change, and failure is not perceived as an inherent and enduring malfunction (Steele & Aronson, 1995). But, Steele and Aronson (1995) caution that such a stereotype, if powerful enough, can enduringly impair one's performance by the process of learned helplessness or demotivation. This highlights the debilitating effect that stereotypes can have on functioning, and, hence, the need for research examining its effects.

The key principles of ST were first described in the mid-1990's by Steele and Aronson (Steele & Aronson, 1995). Their studies focused on optimum-performing African American students at Stanford University. Both black and white students were given a verbal ability test under one of two conditions. In the first condition, students were told that the test did not measure any ability and in the second condition they were told that the test was an assessment of intelligence. Results indicated that students in the first condition performed comparably whereas in the second condition the white students outperformed the black students. The authors of the study proposed that the black students' performance in the second condition was depressed by the activation of the common stereotype which portrayed black people as being intellectually inferior. This supposedly caused anxiety and evaluation apprehension, which compromised task performance within this group. A similar study to that of Steele and Aronson's was conducted back in 1965 by Katz, Roberts, and Robinson, which confirmed that black students performed better at IQ tests when they believed that the measure did not assess their intellect (Steele & Aronson, 1995). In this study, there were evident variations in performance depending on the extent of the stereotype threat being invoked, which strengthened the argument that the performance result was indeed related to the stereotype threat.

An additional study confirming the undermining effects of negative group stereotypes on performance was conducted by Spencer, Steele, and Quinn (1999, in Smith, 2004). This study

found that high-math-achieving females' performances on a math test had in fact dropped when the math gender stereotype of women being inferior at math was invoked. Yet in the math test in which the gender stereotype was not made salient, the women performed equally as well as the men in the study did. This difference in performance in usually high math performers demonstrates the pervasive effects that gender stereotypes may have on performance outcomes (Smith, 2004). Numerous other studies have confirmed Steele and Aronson's findings regarding the impact of stereotype threat on performance, including studies regarding the elderly and memory tests; gender and golf putting abilities; white men and basketball; and males and affective information processing (Haslam *et al.*, 2008).

Researchers have stated that the differences in performance noted above are commonly due to the stereotype threat, whereby group members feared confirming stereotypes which occurred about their group. In the context of the study by Steele and Aronson as abovementioned, there exists a negative stereotype about the intelligence (or the supposed lack thereof) of African Americans, and when the subjects of the study were told that their intelligence was being assessed, they performed poorly despite their usual good performance. Hence, it was suggested that making a test 'diagnostic' was enough to activate the powerful stereotype that African Americans have inferior intelligence, which in turn was sufficient to weaken performance even in groups usually believed to be superior performers (Steele, 1999).

This point has been confirmed by Aronson *et al.* (1999) in their study of high performing white males who were given a math test and told that Asian students usually outperformed white students in math. Under the threat of this negative stereotype, the white students then performed below their usual standard of performance. This demonstrated the important point that stereotypes do not affect minority, or traditionally stereotyped groups exclusively. Instead generally high status, high-performing groups may also be threatened by negative stereotypes. And when stereotype threat is reduced, performance is expected to improve as participants' true and unthreatened abilities become accessible (Steele & Aronson, 1999).

These authors commonly claim that stereotype threat is experienced alike by ingroup members. It can be argued that such claims marginalize or suppress the experiences of individual group

members. Stereotype literature further assumes that it is only the experimental identity which is being tapped into that is of significance to performance, whilst neglecting the multiple social identities which individuals engage with when operating in social settings (Pittinsky *et al.*, 1999). For example, the initial studies aforementioned pay very close attention to the social identity of concern (that is, being African American) and intellectual performance, yet inadequately incorporate the other roles which the participants may have engaged with in the performance setting, such as being a university student. Literature on ST can thus be critiqued for the tendency to underestimate extra-experimental identities, whilst investigating the social identity of concern. Even though the study at hand is limited in its ability to explore the multiple identities which exist under stereotyped conditions, it does attempt to account for the existence of multiple identities in performance situations. Even though the studies aforementioned have empirically demonstrated stereotype threat effects, they did not theoretically explore the reasons for experiencing negative stereotypes as threatening, or the processes involved in responding to the threat. It also omits an explanation regarding individuals who fail to respond in the predicted fashion.

2.3.1. Stereotype threat explained by the multi-threat framework as a heterogeneous experience

Shapiro and Neuberg (2007) propose a multi-threat framework which asserts that the activation of a negative group stereotype may in fact result in the experience of numerous types of threats which are qualitatively different from each other. These threats differ based on who the target of the threat is (that is, the ingroup, outgroup, or the self) and the source of the threat (that is, the ingroup or outgroup). The various threats can be experienced independently of each other or they can occur simultaneously. They are arguably distinct in the sense that they have differential stigmatizing effects, elicit different types of responses and experiences, are mediated through different channels, invoke different coping mechanisms, and require very different modes and levels of interventions to reduce their effects (Shapiro & Neuberg, 2007). The threats they refer to are threats to:

- (a) personal self-concept (i.e., What if this stereotype is true of me?), (b) group concept (What if this stereotype is true of my group?), (c) own reputation in the eyes of outgroup

members (What if outgroup others see me as stereotypic?), (d) ingroup's reputation in the eyes of outgroup members (What if outgroup others see my group as stereotypic?), (e) own reputation in the eyes of ingroup members (What if ingroup others see me as stereotypic?), and/or (f) ingroup's reputation in the eyes of ingroup members (What if ingroup others see our group as stereotypic?) (Shapiro & Neuberg, 2007, p. 108).

This framework makes a significant contribution to the ST literature as it illustrates the complex effects which negative group stereotypes could have on an individual's performance. Shapiro and Neuberg (2007) highlight that experiences of, and responses to, stereotypes are far from homogenous. The premise of a distinct threat causing differential stigmatizing effects anticipates that groups of varying history, position and stigma would also interpret stereotypes differently. This provides useful insight for the South African context in which there is vast polarization between the levels of stigmatization between the black African and non-black African groups. Therefore, it can be expected that these groups would experience distinct forms of threat from each other. Therefore, negative stereotypes might elicit different types of responses and experiences from individuals depending on their additional group memberships and identity resources. Furthermore, the nature of such responses to stereotypes would be expected to differ based on whether they are mostly influenced by personal or group identity resources.

Shapiro and Neuberg (2007) suggest that depending on the type of threat being experienced, there exist a variety of strategies with which to deal with these threats. Such strategies have been highlighted by Shapiro and Neuberg (2007) as: avoidance; disengagement of self-worth; attribute poor performance to sources other than the domain of concern; dis-identification with the group; excelling in another domain; and disproving the stereotype. Thus, contrary to the findings of Steele and Aronson's many studies examining ST, the multi-threat framework suggests that task performance may not necessarily be depressed (according to the specific features of the experienced threat) and that individuals' responses to stereotypes are strategically informed by their multiple group memberships. In so doing, these authors display a shift in conceptualization of stereotype responses from 'just responding to stereotypes' to 'deliberation and strategy' on the part of stereotype targets as informed by their group memberships and identity resources. Steele, Spencer, and Aronson (2002) affirm that counter-stereotypic behaviours may occur whereby individuals disprove the stereotype by performing exceptionally well when a negative stereotype has been invoked about their group. These findings suggest that there are in fact structural

differences in how threatening situations may be experienced and that individuals are indeed strategic in responding to stereotypes.

2.3.2. Counter-stereotypic behaviours

A reversal in stereotype threat effects is termed stereotype reactance by Hoyt and Blascovich (2010). Kray, Thompson, and Galinsky (2001, in Crisp, Bache & Maitner, 2009) found that individuals were able to display contradictory behaviours to those expected in response to negative stereotypes, but only when the negative stereotypes were explicitly stated. Crisp *et al.* (2009), on the other hand, argue that it is not just by virtue of explicit activation that individuals defy stereotypes. In an attempt to understand counter-stereotypic behaviours, Crisp *et al.* (2009) investigated women who entered fields which were constructed as being best suited for males and in which females were stereotyped as being incompetent, namely engineering. This group of females was selected, not just because they entered fields in which their gender was negatively stereotyped, but also because they had been successful in these fields despite enduring chronic negative stereotypes. The study found that women studying engineering performed much better when the negative gender stereotype was invoked. Interestingly, the former group performed better after the manipulation occurred. The group positively stereotyped (females in psychology) performed as expected by ST whilst the group negatively stereotyped (females in engineering) excelled under what was largely considered threatening contexts. These findings are contrary to earlier findings on ST as clear reversals were evidently demonstrated by the engineering group under threat. This paper argued that there are many instances in which negative stereotypes would in fact boost performance. In this way, the threat was not only ineffective and surmounted by deflection, but was reversed altogether by the group that should have been more threatened by the stereotype. Yet it was the group that was expected to be less threatened that in fact displayed clear stereotype threat effects.

Crisp *et al.* (2009, p. 10) add that "...individuals tend to perform better when they perceive that they have the resources to cope, but worse when they perceive that they have inadequate coping resources." In the case of their study, this means that the less stereotyped and stigmatized group (the psychology group) was the group with the perceived inadequate coping strategies and the

engineering group clearly perceived a strong resource base for dealing with stereotypes. According to these authors, it is ongoing experience with stereotypes (as would be expected, females entering negative gender stereotyped domains would regularly encounter threatening stereotypes) that actually build this resource base of coping. Seeing that threat is experienced when individuals perceive that the demands of a situation exceed their resources, it comes as no surprise that it is in fact individuals who have rarely been exposed to negative stereotypes who would experience a greater threat as they lack such a resource base for coping with stereotypes (Hoyt & Blascovich, 2010). In addition to the reversal effects noted, these authors suggest that there is a degree of planning and strategy that occurs when responding to stereotypes.

2.3.3. Mechanisms through which negative stereotypes influence performance

2.3.3.1. Increased cognitive load

Negative stereotypes are said to threaten performance due to the cognitive burden or cognitive load which notions of inferiority place on an individual when carrying out a task (Schmader & Johns, 2003). This is hypothesized as inevitably leading to poor performance success (Schmader & Johns, 2003). For example, when solving a math problem where the math gender stereotype is made salient, a woman who is aware of the negative stereotype that women are poor at math, would most likely tell herself that the problem is difficult, that she cannot do it, that she would get it wrong anyway, and there is no way that she could know this. Common mediating factors of negative stereotype effects as identified by Shapiro and Neuberg (2007) are: self-consciousness and a desire for approval from self and others, intrusive thoughts such as negative performance-related thinking, arousal due to performance pressures, emotional reactions such as shame, guilt and anger at being treated unfairly, reduced self efficacy, amplifying the number of negative thoughts, interfering with problem solving strategies, reduced working memory capacity, reduced task confidence and performance expectations.

Such thoughts and dynamics are quite taxing on cognitive resources which could otherwise be used to solve the actual problem had the stereotype not been salient in the situation (Schmader & Johns, 2003). So, attention is exhausted by task-irrelevant concerns and excessive self-consciousness. As such, those who are cognitively overloaded and distracted are expected to

perform worse on domains which relate to the stereotypes held about their groups, thereby actually confirming the stereotype despite its falsity. Alternatively, they become so aroused that they are unable to access their ability to perform well (Keller, 2007). Thus, it is suggested that “performance suffers when the situation redirects attention needed to perform a task onto some other concern—in the case of stereotype threat, a concern with the significance of one's performance in light of a devaluing stereotype” (Steele & Aronson, 1995, p. 798).

The cognitive model, therefore, supposes that this anxiety and cognitive burden is not borne by groups not negatively stereotyped, who then perform better than those being negatively stereotyped, ultimately confirming the stereotype. However, Smith (2004) demonstrates mixed evidence for ‘anxiety’ as a mediator of the stereotype-performance relationship. Haslam *et al.* (2008) oppose the argument of the stereotype-performance relationship being mediated entirely by cognitive mechanisms and suggests that this explanation may account for threat effects but fails to account for lift effects on performance outcomes. They argue further that it is unlikely that the stereotype-performance relationship is mediated by cognitive means due to clear results suggesting that performance is threatened even if the task does not require much cognitive resources, as in the case of white men and athletic abilities, for example.

2.3.3.2. Effort spent on task

Negative stereotypes are also believed to undermine both the rate and accuracy of performance (Steele & Aronson, 1995). In this regard, individuals under threat are likely to spend a lot of time on an item and are more likely to get it wrong. The existence of negative stereotypes about one's group in performance situations often leads to frustration at the threat, which results in one withdrawing effort and underperforming regarding the amount of time spent on test items and the total number of items attempted. Others still seem to put in a great deal of effort and yet continue to perform poorly (Steele & Aronson, 1995). However, research on effort as a mediator of the stereotype-performance relationship has also yielded mixed findings (Smith, 2004). While some studies have demonstrated that effort does in fact mediate the stereotype-performance relationship, other studies have yielded statistically insignificant findings for this effect (Smith, 2004). However, ambiguous findings by James and Greenberg (1997, in Smith, 2004) suggest that effort as a possible mediator of the stereotype-performance relationship cannot be totally

ruled out due to the significant findings which have been reported; instead more research is required on this matter. Smith (2004) adds that there is no single mechanism through which stereotypes threaten performance. Instead, there are multiple, simultaneous mediators of the stereotype-threat-performance relationship. Thus, it is the pursuit of a single mediating mechanism in previous research that has resulted in mixed and often opposing findings.

2.3.4. Stereotype threat as a social-psychological predicament

Stereotype threat is referred to as a social-psychological predicament due to its possible negative impact on performance (Steele & Aronson, 1995). Negative stereotypes become a predicament in that any act on the part of a group member that confirms the stereotype actually strengthens and validates it, not only to outgroup members but also to ingroup members (Smith, 2004). These perceptions place individuals at greater risk for confirming the stereotype as their self-expectations and efficacy would also drop if they begin to self-doubt (Steele & Aronson, 1995). It is hypothesized that continuous exposure to stereotypes about one's group would result in persistent self-doubt, leading to low performance expectancies (Steele, 2003). In the long-run these low expectations of performance would eventually result in group members being demotivated, prompting their dis-identification with particular domains which may in turn reinforce the stereotypes (Steele & Aronson, 1995). It is predicted that those who have a stronger sense of domain identification would be impacted more by the stereotypes targeted at a particular performance; consequently, dis-identification with stereotyped domains may partially relieve an individual from their negative effects (Smith, 2004). In summary, those who care more about the domain of functioning (for example, academic performance) are impacted more by stereotypes targeted at these domains, and these individuals are usually high achievers and good performers who are generally highly motivated.

2.4. Stereotype Lift (SL)

SL holds that individuals belonging to groups believed to be competent in certain domains are more likely to succeed when that domain is assessed and the positive stereotype is made salient

(Haslam *et al.*, 2008; Shih, Pittinsky & Trahan, 2006; Walton & Cohen, 2003). Research has indicated that elevated performance on these tasks was due to a reminder that one's group was in fact better at this task than most other groups were, or an awareness that an outgroup was stereotyped in a certain regard (Walton & Cohen, 2003). Moreover, it is believed that stereotype lift mostly benefits those who believe that certain negative stereotypes about outgroup members are true (Walton & Cohen, 2003). Lift effects are often a result of downward social comparison, which by definition refers to the act of comparing one's group performance to that of a socially denigrated group, and is often employed as a means of enhancing one's self-worth (Walton & Cohen, 2003).

Typically, it is prejudiced individuals who tend to engage in downward comparisons; hence, it is apparently the most prejudiced who benefit most from lift effects (Walton & Cohen, 2003). These individuals have been identified as those who try to maintain the social hierarchy, want to preserve their self-image, and prefer social dominance (Walton & Cohen, 2003). A study conducted by Carter, Hall, Carney, and Rosip (2006) suggests that stereotypes are more readily accepted and endorsed by individuals who frequently, implicitly or explicitly, stereotype other groups, have more authoritarian attitudes, have a preference for hierarchies, higher social dominance orientation, and have a higher utilization of social categories such as gender and race. In accordance, this study found that African Americans and females (minority groups) were less likely to endorse stereotypes than white and male participants were (dominant groups). Steele and Aronson (1995) also found that African American students were reluctant to describe themselves in stereotypic ways. This is confirmed by Schaff (1984, p. 89) who states that, "The less a given individual realises them (stereotypes) and the more they admit rationalizations and are disguised as elements with an objective cognitive value, the stronger the impact on that individual." It is more probable, then, that individuals belonging to traditionally majority groups would attempt to rationalize stereotypes, whilst minority groups would be more inclined to resist them. Accordingly, and contrary to popular STL theorizing, it can be argued that individuals from typically high status groups may be more vulnerable to STL effects than are traditionally low status group members, who are less inclined to endorse stereotypical ideation.

2.4.1. Positive effects of stereotype lift on performance

It is argued that stereotype lift effects ameliorate the anxiety, threat, doubt, and fear of rejection associated with poor performance (Walton & Cohen, 2003). As in the case of stereotype threat, lift effects also influence those who identify more with the relevant performance domains, either in terms of the performance-relevant groups or relevant areas of functioning or ability such as intelligence. In STL, the term ‘domain identification’ refers to the identification with specific domains of functioning whereas in Social Identity Theory (SIT) it refers to identification with specific social groups.

Non-stereotyped groups’ self-efficacy is reportedly elevated due to comfort in the assumption that no matter how poorly they might perform, they could not perform as weakly as the stereotyped outgroup members. This is then believed to raise self-expectations and personal self-worth, which in turn improves their performance (Walton & Cohen, 2003). Thus, in addition to experiencing less anxiety than those under threat, individuals receiving positive stereotypes also experience greater levels of confidence – two factors which are good indicators for successful performance outcomes (Shih *et al.*, 2006). In addition, Haslam *et al.* (2008) claim that such attestation of known stereotypes is due to individuals either living up, or down, to that which is expected of the group to which they belong. Therefore, stereotypes not only promote failure but also advance success. Understanding the dynamics which underlie the varied abilities expressed allows one to detect conditions which are both optimum in cultivating success as well as those which inhibit it (Haslam *et al.*, 2008), which is partly why this study explores both ST and SL.

2.4.2. Negative effects of stereotype lift on performance

In opposition to SL, Cheryan and Bodenhausen (2000, p. 399) argue that “when a positive performance is anticipated by an external audience, an individual may experience apprehension about meeting those high expectations, and such feelings can lead to the phenomenon known as ‘choking under pressure’.” In a study examining Asian-American women’s performance on a test of quantitative skill, in which they were explicitly made aware of the positive stereotype about their ethnic performance in this domain, these authors discovered that participants displayed diminished ability to concentrate because of pressure and high expectations, and a fear

of undermining the group's reputation. Consequently, they performed poorly on the math test (Cheryan & Bodenhausen, 2000). Thus, the effects of positive stereotypes need not always be beneficial. This effect is apparently largely evident when the stereotype is made explicit and the individual is made to think about their social categories (Baumeister, Hamilton & Tice, 1985 in Cheryan & Bodenhausen, 2000). Cocchiara and Quick (2004) agree that positive performance stereotypes may have adverse effects and they add that it is the increased anxiety and pressure associated with needing to uphold the reputation of the group that actually leads to decreased performance.

As in the case of ST, SL also fails to acknowledge the possibility of reversal effects to positive stereotypes such as the ones mentioned above. Although both these theories have empirically demonstrated strong stereotype effects on task performance, they clearly assume predictable and homogenous changes in performance outcomes and fail to account for varied responses to stereotypes - such as reversals. Such reversal effects could be the result of an individual engaging with additional social identities and identity resources not accounted for by the experimental condition. STL tends to underestimate the effects of extra-experimental identities by assuming that it is merely the social identity under investigation that is being engaged with in the performance situation. Hence, STL inadequately explores the impact of the multiple categories in which individuals exist, by assuming that it is only the explicitly invoked identity that is of influence. By claiming to be entirely situational, STL reinforces the notion that extra-experimental identities are not of concern to performance outcomes when stereotypes are invoked. Therefore, STL is not rooted in a theoretical framework that explains how identity is embedded and produced in social contexts. In addition, STL has made very little progress in understanding why people experience STL or how they might avoid threat or safeguard lift.

It has recently been suggested that Social Identity Theory (SIT) could make a useful contribution to understanding STL phenomena (Haslam *et al.*, 2008). STL literature suggests that specific social identities are invoked by highlighting certain group memberships, which allow for stereotype effects to occur. Hence, exploring the nature of these identities and how and why it influences the effects of stereotypes on performance seems essential. The individual and group processes that occur once individuals begin aligning themselves with particular social identities

activated in stereotyped situations are useful to unpack when examining STL effects. Furthermore, most explanations offered for the change in performance due to stereotype activation are individualistic. However, SIT provides a framework for categorization, stereotyping and intergroup behaviour that may be useful in understanding the phenomenon of STL. Therefore, the aim of this study is to apply SIT to STL phenomena and reframe these in SIT terms in order to gain a more comprehensive understanding of its concepts.

2.5. Social Identity Theory

2.5.1. Social Identity

Social identity is the part of one's self-concept derived from group membership. In other words, social identity is the definition of the self in terms of the social category, or categories, to which one belongs. People inevitably belong to more than one social group; thus, their social identity refers to a grouping of identities derived from the different social categories with which they identify (Ellemers, 1993). Amiot, de la Sablonniere, Terry, and Smith (2007, p. 366) add that "when multiple identities become integrated in the self, they are organized within the global self-structure such that they can be simultaneously important to the overall self-concept." This implies that the self-definition associated with a social category becomes salient depending on the situation in which a person finds themselves, and social identities would be alternately assumed as they become important to one's self-concept. Therefore, a different part of one's social identity is activated in different situations. In the case of stereotypes then, it is only part of an individual (or one of the identities) that is subject to the stereotype. As a result, an individual may be able to swap to an identity which is not stereotyped, and which would allow them to deflect the stereotype – also known as identity adaptiveness – a phenomenon which has been omitted from STL theorizing (Pittinsky *et al.*, 1999).

SIT provides a framework for understanding individual experience and action and intergroup relations within social hierarchies (Verkuyten & Reijerse, 2008). SIT was initially formulated to contest the belief that intergroup conflict was a direct result of competition for scarce resources and to illustrate that the mere existence of a desire for positive group distinction can lead to

intergroup conflict (Tajfel & Turner, 1979 in Ellemers, 1993). This theory has been explained in the following ways: “This theory not only describes the psychological processes underlying the desire to establish positive social identity, it also identifies antecedent conditions to the use of different options to improve one’s status position” (Ellemers, 1993, p. 27).

...the basic processes social identity theory describes imply that (a) people may define themselves and others as members of social groups, (b) on the basis of which certain (group) characteristics are ascribed to individual group members, and (c) these characteristics may compare positively or negatively to the characteristics of other groups. (Ellemers, 1993, p. 30).

In essence, SIT postulates that individuals generally aspire toward a positive social identity and are subsequently affected by stereotypes which could either boost or depress these identities (Ellemers, 1993). A negative social identity or low group status is the consequence of a poor comparison to other groups, which may be the result of a negative ingroup stereotype. A positive social identity or high group status, on the other hand, occurs when a group compares favourably with other groups, which may occur when a positive group stereotype is invoked (Ellemers, 1993).

Moreover, a person’s degree of affiliation to either the ingroup or outgroup can be understood in terms of this central desire for positive distinctiveness. In this sense, SIT states that an individual will rid themselves of a negative social identity and try to identify with the group (either in-or-outgroup) which is most beneficial to a positive self-image (Pittinsky *et al.*, 1999). According to this theory, then, high status group members who have a positive sense of identity would become very strongly affiliated to their group (Ellemers *et al.*, 1988). “Thus, it appears that people tend to flaunt their association with a high status group, while they try to evade the identification as a member of a low status group” (Ellemers *et al.*, 1988, p. 498). This also suggests an element of choice in whether to identify or disidentify with the ingroup. This is not to say that individuals mechanically identify and disidentify with social identities in pursuit of positive distinctiveness. Instead, this use of social identities is strategically approached when engaging in intergroup settings – what Pittinsky *et al.* (1999) term optimal adaptiveness. SIT has an underlying assumption of multiple category membership which results in multiple identities. These identities

are then actively used by group members in a way that would be beneficial and adaptive to optimum functioning.

SIT provides a conceptual framework for understanding intergroup relations based on the quest for positive distinctiveness. It is important to be cognizant that this quest exists in, and is often governed by, a larger social structure and context. Therefore, acts in pursuit of positive distinctiveness are often determined and shaped by the nature of these social structures. SIT explains that depending on the nature of the relevant social structure, there are two options for seeking positive distinctiveness, one being social change and the other being social mobility (Verkuyten & Reijerse, 2008). Social mobility refers to the act of disassociating with a group of low status and identifying with a high status group, whilst social change refers to attempts at improving the status of the whole group (Crisp *et al.*, 2009). Social mobility is an individual response to positive distinctiveness, whereas social change is a collective strategy to improve the group's status (Ellemers, 1993; Haslam *et al.*, 2008). These strategies are discussed in more detail as they apply to each of the structural variables of SIT. The following sections will focus on 'identification' and 'permeability' as sociostructural variables of SIT.

2.5.2. The centrality of group identification to SIT

According to Amiot *et al.* (2007), individuals (who by nature have multiple social identities) typically align themselves with the social identity that would place them in the most positive light in a given context. Gaertner, Dovidio, Bachman, and Rust (1993) suggest that, in the case of hierarchical social identities, individuals tend to identify with a group of a higher status and better reputation. Pittinsky *et al.* (1999) agree that individuals with multiple social identities tend to orient themselves to the identity that is most adaptive to a desirable performance outcome. This is often achieved by repressing social identities of a lower status, recategorising oneself, and identifying with the superior social group (Gaertner *et al.*, 1993). Subsequent to individuals aligning themselves or identifying with particular social identities, they begin to behave in accordance with that which is expected of the newly affiliated group. In the case of intellectual performance, it would then be expected that identifying with an intellectually positively stereotyped group (which may be a superordinate category) would improve performance

outcomes. Hence, recategorisation and superordinate level identification may influence stereotype threat.

2.5.3. Group identification as a mediator of the stereotype-performance relationship

Furthermore, literature on SIT asserts that strong group identification mediates the stereotype-performance relationship. An individual with poor ingroup identification is believed to be most unlikely to self-define in terms of ingroup norms and therefore should not be impacted by existing ingroup stereotypes (Haslam *et al.*, 2008; Smith, 2004). This was confirmed by a study showing that Asian women perform better at math if they identify more strongly with being Asian (a category to which a positive math stereotype is attached) than with being a woman (a category to which a negative math stereotype is attached) (Shih, Pittinsky & Ambady, 1999). The subjects demonstrated poor identification with the social category of gender and their performance was consequently unaffected by the negative stereotypes associated with their gender regarding mathematical ability.

Crisp *et al.* (2009) suggest that individuals do not just distance themselves from a negatively stereotyped social identity in pursuit of positive distinctiveness. Instead, they also incorporate a positively stereotyped social identity into their self-definition to a larger extent, which fosters improved outcomes. Therefore, it is likely that an individual who lacks strong ingroup identification would be less affected by group stereotypes, whereby dis-identification with the ingroup could be a strategy employed to boost one's sense of identity. Dis-identification (with a stereotyped group or domain of functioning) reduces the stress associated with negative stereotypes by causing an individual to care less about their oppressive circumstances. More importantly, Crisp *et al.* (2009) add that these individuals go a step further by reframing their self-concept in a strategic fashion by identifying much stronger with a social identity that is more beneficial to desirable outcomes.

In their justification for omitting an Asian female student from their experiment, Crisp *et al.* (2009) explain that she was able to draw from the positive ethnic identity associated with math performance. Thus, these authors imply that there are not only many social identities which

operate in performance situations, but that individuals can also be expected to strategically draw on such identities to enhance performance outcomes. In this sense, Crisp *et al.* (2009) make a useful contribution to the STL literature by acknowledging the richness of extra-experimental identities and the effects that this could have on performance outcomes in even the most controlled settings. This suggests that multiple group memberships can inform responses to stereotypes in a way that demonstrates strategy and agency.

The strategic nature of such an act lies in the fact that the value and benefit of a given social identity varies by context. Thus, it requires insight to know which social identity would actually be the one of greatest advantage. This highlights deliberation by the group member when engaging in intergroup settings. Hence, not all stereotyped group members would self-doubt and underperform. Whilst some would question the self-applicability of stereotypes, others still would try to prevail over it. So, SIT argues that individuals belong to multiple social categories, and have multiple identities, which can very well be used strategically to yield favourable outcomes – a point which STL literature has not given sufficient attention to by focusing on a unified social identity as made salient by the experimental condition. In addition to understanding the multiple categories which an individual currently exists in, it is equally important to consider previous social positions held when conceptualizing STL effects.

2.5.4. The effect of previous social status on identification patterns and experiences of STL

It has been postulated that identification patterns in response to stereotype exposure may not be entirely situational. Amiot *et al.* (2007) claim that individuals from traditionally high and low status groups tend to have very different identification patterns. These authors demonstrate how individuals from low status groups, when affiliated to a new social group, tend to identify less strongly with the new social group. In contrast, individuals from previously high social status categories tend to display much stronger ties, and identify more strongly, with the new social identity. Chattopadhyay, George, and Lawrence (2004) also argue that individuals who have belonged to typically high status groups are more likely to identify strongly with other social categories in which they exist. It would then be expected that previously stigmatized groups,

such as blacks and women, would be lower identifiers with their social identities in comparison to whites and men, for example.

Ellemers, Spears, and Doosje (1997) add that low group identifiers are less likely to self-stereotype as a group member when their group identity is threatened. Instead, they are more willing to pursue individual mobility to a group of higher status. “Low identifiers... show at best indifference to continued group membership under both threatening and also more neutral conditions” (Ellemers *et al.*, 1997, p. 625). High identifiers would, however, opt to stick together and remain committed to their social category under threatening and neutral conditions.

Costarelli and Callá (2007) indicate that high ingroup identifiers are much more sensitive to identity threat and its effects than low identifiers are. In addition, high identifiers categorise themselves more strongly as a group and consequently become more depersonalized in their perceptions, attitudes, beliefs, behaviours, and values. Thus, individuals from typically low status social categories are more inclined to identify or align themselves with social categories of a high social status rather than self-stereotyping as part of a denigrated social group. Dis-identification with a low status group may either have a buffering or boosting effect on performance outcomes (Steele *et al.*, 2002). Yet individuals of typically high social status would remain strongly affiliated to their social categories and be more powerfully influenced by group dynamics such as stereotypes – both positive and negative.

Arndt, Greenberg, Schimel, Pyszczynski, and Solomon (2002) rationalize this argument by asserting that the more central a social identity is to an individual (as in the case of high identifiers), the more likely they are to try and defend it instead of dis-identifying with it and identifying with a superordinate category instead. So when individuals who are highly invested in a particular paradigm or system of beliefs encounter attacks on such beliefs, they become more committed to adhering to the belief. Hence, individuals belonging to social groups of varying stigma would interpret and respond to stereotypes in a very different fashion, depending on their own levels of investment in those identities and their history of high or low social status.

Evidently, and as is explained by ST and SL, by reducing the threat to one’s social identity, performance can be enhanced in a variety of settings (Steele, 2003). This emphasizes the

significant role which social identity occupies in explaining STL effects. This relationship between SIT's various tenets and STL phenomena will be further explored by this study. Now that group identification has been shown to mediate the stereotype-performance relationship, it would be worthwhile to explore factors which influence group identification. For purposes of this study, the factor of group boundary permeability will be explored in detail.

2.5.5. The influence of group boundary permeability on group identification

Group boundary permeability refers to the possibility or the likelihood of an individual moving from one social group to another (Ellemers *et al.*, 1988; Verkuyten & Reijerse, 2008). However, not all social structures allow for such mobility. In such cases, social change strategies that modify the status of one's group are the most plausible option for improving one's status. Thus SIT makes a crucial distinction between social structures with permeable boundaries and those with impermeable boundaries.

In situations where individual mobility appears plausible, members of low status groups believe that a higher social status can be attained by crossing over to a group of a higher status (Ellemers, 1993; Verkuyten & Reijerse, 2008). Individuals may choose to shift allegiance to the dominant group which is of a higher status than the ingroup (Ellemers *et al.*, 1988). Research suggests that, in such social structures, individuals become dissatisfied with current group membership and begin to identify with, and self-define in terms of, the positive group even prior to officially moving to that group. Conversely, in social structures characterised by rigid and impermeable group boundaries, individuals have no choice but to identify with the ingroup as individual mobility is not practical. It would then be expected that even low status group members would have increased ingroup identification. This would then result in group action in pursuit of a positive social identity for the entire group, constituting collective strategies for status improvement, instead of individualistic acts to enhance individual social identity (Ellemers, 1993). Generally, however, collective action is only considered once failed attempts at individual action have occurred or when individual action is precluded by low permeability. Thus, perceptions of group boundary permeability determine both the extent to which group

members identify with the in-or-outgroup as well as whether individualistic or collective strategies for status improvement will be employed.

Central to SIT is the notion of a general desire to identify with high status groups instead of low status groups (Ellemers, 1993). It has been shown that members of high status groups generally identify more strongly with their groups than members of low status groups do (Ellemers *et al.*, 1988). Ingroup identification in low status groups is furthered weakened, and the chances of movement to a higher status group to improve social identity increases (referred to as the *status enhancement hypothesis* of SIT), when the group boundaries are seen as permeable. Moreover, greater ingroup identification occurs when downward mobility is more likely than upward mobility, and vice versa (Ellemers *et al.*, 1988). This confirms the position that high status groups tend to clutch on to their group membership whilst low status groups attempt to escape from their status.

Breakwell (1978, in Ellemers *et al.*, 1988) suggested that high status group members with permeable group boundaries seemed to identify more with their groups than those in the same group but with perceptions of impermeable group boundaries. It could be that those with permeable boundaries felt more threatened by the possibility of sliding into a lower status group and thus tried to hang on to their elevated identities in an attempt to safeguard it (referred to as the *status protection hypothesis* of SIT) (Ellemers *et al.*, 1988). A similar finding was reported by Ross (1977, in Ellemers, 1993). His study indicated that the group's status did not hinder the degree of group identification in fixed groups. But in groups with permeable boundaries, low status group members identified poorly with their groups, whereas high status group members identified strongly with their groups. Hence, group boundary permeability would only decrease group identification in low status group members if upward mobility was possible. Similarly, increased group identification would occur if downward mobility could happen in both low and high status groups.

2.5.6. Perceptions of group boundary permeability and the approach to STL effects

Haslam *et al.* (2008) state that permeable group boundaries allow for individual mobility from the ingroup to a group of higher social status. In a sense this means that these group members endorse the stereotype about the ingroup and choose to avoid it. Furthermore, disassociation from, and abandonment of, the stereotyped ingroup is indicative of such individuals' beliefs that they are not befitting of this stereotype (for example, "we are inferior, but I am not") (Haslam *et al.*, 2008). Impermeable boundaries, on the other hand, would result in social action to improve ingroup status by reducing the pervasiveness of the negative stereotypes associated with the group. This is usually achieved by denial of the legitimacy of the stereotype and resistance to its existence (Haslam *et al.*, 2008). Regardless of the form of action against negative stereotypes, group members generally neither accept nor avoid these stereotypes. Evidently, when faced with threatening stereotypes to one's self-image, group membership can inform responses to stereotypes in a way that demonstrates strategy and agency. Hence, as has been previously explained in this chapter, stereotypes are neither merely reinforced nor resisted, but are strategically approached to yield favourable outcomes. However, this has not been given sufficient consideration in the STL literature.

Thus, perceptions of group boundary permeability may modify the extent to which group members identify with the ingroup or outgroup. Since STL has been shown to relate to social identification, permeability may therefore impact on STL effects. However, this potential relationship has never been explored. This study anticipates filling this gap.

2.6. The central aim of this study: Application of SIT to STL phenomena

This chapter has suggested that it is imperative to understand the effects of STL on performance outcomes, especially within a South African context in which there exists a long history of intellectual stigmatization for particular groups, as well as the pervasiveness of social stereotypes. It has also been demonstrated that STL inadequately explains the full experience of stereotypes on task performance for the reasons that follow. Firstly, STL predicts homogenous changes in performance outcomes and inadequately accounts for reversed responses to negative

and positive stereotypes. It also assumes that threat and lift is experienced similarly by ingroup members. However, distinct interpretations of positive and negative stereotypes, favourable outcomes in response to negative stereotypes, and depressed performance as a result of positive stereotypes have been empirically demonstrated in the literature. These are examples of reversed interpretations and responses which STL has failed to include in its theorizing. STL does make mention that it is the activation of certain social identities arising from particular group memberships that actually bring about stereotype effects. However, it tends to underestimate the influence of extra-experimental identities on performance outcomes by emphasizing the purely situational nature of stereotype effects, which is unaffected by previous social positions, for example. Therefore, STL is not rooted in a theoretical framework that explains how identity is embedded and produced in social contexts and as has been demonstrated, social identities are essential in understanding experiences of STL. Even though the study at hand is limited in its ability to explore the multiple identities which exist under stereotyped conditions, it does attempt to account for the existence of multiple identities in performance situations. Consequent of its lack of a sound theoretical base, there has been little progress in understanding why people experience STL or how they might avoid threat or safeguard lift.

It has recently been suggested that SIT could make a useful contribution to understanding STL phenomena in these regards (Haslam *et al.*, 2008). This is because SIT and its central premise of a quest for a positive social status may help us understand why people experience such a threat or lift from stereotypes, and why, or how they try to rid themselves of the threat or safeguard the lift. Furthermore, it could help us understand the social circumstances under which a person would either attempt to disassociate themselves from, or try to challenge and eradicate certain stereotypes about their groups. In this way, SIT would facilitate an understanding of individual and group action in response to stereotypes. Most importantly, group identification, a central tenet of SIT, has been found to mediate the stereotype-performance relationship. So, exploring the notion of group identification becomes essential to accounting for STL phenomena. This theory also identifies a range of other factors which influence group identification and possibly the stereotype-performance relationship. Amongst these factors, and key to this study, is the perception of group boundary permeability, which may indirectly influence the effects of group stereotypes on task performance.

Moreover, SIT has an underlying assumption of multiple category membership and explains that individuals have multiple identities. It is then anticipated that not all ingroup members will succumb to either the threats or lifts of stereotypes. Instead they can, and often do, respond strategically in such situations by engaging with the group identity most likely to yield favourable outcomes. Since individuals will have different combinations of alternative identities which impact on their experience of and performance on the task, this adds a useful contribution to STL literature which tends to focus on a unified social identity as made salient by the experimental condition. According to SIT, whether an individual is influenced by a stereotype targeted at their group depends on the degree to which that individual identifies with their group (Haslam *et al.*, 2008). And these identification patterns are largely influenced by previous social positions held, for example.

Furthermore, individual psychological functioning and behaviour do not exist independent of life contexts, and contexts are largely influenced by social identity and stereotypes (Steele, 2003). As Steele (2003, p. 317) states:

Based on stereotypes about social identities, and on how society is organized around these identities, the settings of society—classrooms, workplaces, and so forth—are set to respond differently to people with different social identities. This means that people with different social identities may have to contend with different contingencies in a situation that otherwise looks the same. They may have to contend with different stereotypes about them, different access to critical networks in the setting, different judgments of their behavior, and so on. And these different contingencies of social identity, as we have come to call them, are very likely to affect their functioning and behavior.

Consequently, the dynamics of these identities and stereotypes should be explored and understood when drawing conclusions about a person's or a group's cognitive functioning – an area which this study aims to investigate within the South African context. Specifically, this study will explore whether varied perceptions of group boundary permeability would influence the stereotype-performance relationship.

Chapter Three: Method

3.1. Research questions

The key focus of this study is to determine whether a change in perceptions of group boundary permeability would influence stereotype threat and lift effects on task performance. A number of essential questions ought to be answered in order to determine whether a change in perceived group boundary permeability would interact with group status with regard to the STL effect. This study attempted to answer these questions in order to get a more comprehensive understanding of the topic at hand. Amongst such questions are the following:

- Whether the STL effect is replicable in a South African tertiary education setting
- The degree to which individuals' identification with the social category (in this case, the institution) to which they belong influences STL effects
- The influence that perceptions of group boundary permeability (high or low) would have on STL effects.

3.2. Background to the tertiary institutions used to operationalise this study

Unlike most STL studies that invoke powerful categories such as race and gender, this study invoked categories defined by membership of different tertiary institutions to minimize risk, as strong stigmatization does not typically exist within these categories. This study aimed to explore academic abilities. Due to many preexisting stereotypes about Varsity College (VC) and the University of KwaZulu-Natal (UKZN) regarding academic outcomes consequent of institution size and available facilities and resources (these preexisting stereotypes can be viewed in the various manipulation sheets in Appendix 1), it was envisaged that these institutions in particular would be useful in understanding STL effects on cognitive task performance. Both institutions have ambiguous and conflicting stereotypes that could be invoked to produce either a threat or boost effect within the same category. Even though UKZN students were not sampled by this study, the institution was used as a contrast to the academic abilities of students at VC. 100 VC students were sampled by this study. In addition, UKZN Pietermaritzburg has been extensively

studied by the principal study which this study falls into yet VC is a population which has been neglected in this area of research.

3.2.1. Varsity College (VC)

VC is governed by the Independent Institute of Education (IIE) and is registered as a private provider of higher education. VC offers a wide range of degrees, diplomas, certificates, and short learning programmes on both a full-and-part-time basis. This institution places large emphasis on the value of practical exposure in understanding theoretical components of any given field. Thus, most of their courses incorporate a programme of experiential learning in the form of simulated workplace exposure. The class sizes at VC are small, which means that there is greater individual attention afforded to each student, as well as interactive modes of learning. There is a positive stereotype associated with smaller institutions such as VC, whereby it is suggested that they tend to produce students with higher academic ability due to features such as small class sizes, greater access to resources, and better access to lecturers. Invoking this stereotype might create a stereotype boost effect at VC but possibly a threat effect at UKZN which is a larger institution. The VC campus which was sampled by this study was the Pietermaritzburg campus situated in Scottsville, comprising approximately 1700 students.

3.2.2. University of KwaZulu-Natal (UKZN)

UKZN comprises 8 faculties in total, each headed by a deputy vice-chancellor and head of college. There are a number of courses offered at both undergraduate and postgraduate levels. These courses range from degrees and diplomas to access programmes. There is a large focus on enhancing research knowledge within the University itself. UKZN teaching approaches aim to foster independent critical thinking and deep learning via instructive teaching techniques and assessments. UKZN is well resourced in terms of its many libraries, online journal access, 24-hour LAN access facilities, social spaces and activities, and student support services. There is a positive stereotype that such features of larger institutions like UKZN tend to produce students with higher academic ability. Invoking this stereotype at UKZN could elicit a boost effect on performance outcomes whereas it is likely to result in a stereotype threat effect at VC. There are

roughly 40 000 students registered at UKZN, approximately 9000 of which are registered at the Pietermaritzburg campus which is situated in Scottsville.

3.3. Design

A quantitative factorial experimental design was used to explore the abovementioned research questions. This type of design enabled the testing of multiple hypotheses simultaneously and the investigation of interactions between variables (Durrheim, 2002). An experimental design was necessitated because of the active manipulations of group status and perceptions of group boundary permeability which this study entailed (Tredoux, 2002). A factorial design facilitated the exploration of the effect of task-related status and group boundary permeability on performance, as well as the relations between these variables.

To explore permeability and STL on task performance, the requirement was that applicable group stereotypes be invoked and permeability be manipulated. Group status (stereotype threat or lift) and group boundary permeability (high or low) were the independent variables/factors in this study, and task performance was the dependent variable. So, the effect that group status and permeability had on task performance was the primary focus of this study. Furthermore, Steele and Aronson (1995) demonstrated the importance of adding a covariate to determine initial skills and cognitive performance. Thus, prior to exposing participants to the research manipulations, these authors requested prior Scholastic Aptitude Test (SAT) scores as a covariate. A covariate was added to increase the power of the design by potentially accounting for individual differences in ability by asking participants to complete a similar measure prior to the manipulations. Following the manipulations, a cognitive performance task was administered in order to determine if the manipulations of the stereotypes and permeability have impacted cognitive performance.

The stereotypes invoked were preexisting stereotypes which were based on academic abilities resulting from institution size, that is, UKZN being a large institution and VC being a smaller institution. To manipulate group status, participants were told that UKZN/VC had either superior or inferior academic ability (producing either stereotype lift or threat conditions) by invoking

preexisting positive or negative stereotypes about the groups. Group status is the SIT term which is generally labeled as threat or boost in the STL literature. Group status is determined by the type of stereotype invoked in a group. A positive ingroup and negative outgroup stereotype results in a boost condition, and a negative ingroup and positive outgroup stereotype results in a threat condition. For example, the boost conditions at VC, in which a positive stereotype was invoked, were told that tertiary institutions which are smaller in size tend to produce students with higher academic abilities due to features such as small class sizes, greater access to resources, and better access to lecturers. Conversely, invoking the stereotype that larger institutions with better facilities, such as libraries, LANS, and journal access, produce students with higher academic ability created a threat condition at VC. The boost condition was also told that students from VC generally performed better on the APM than students from UKZN, and the threat condition was told the opposite. Half the sample group (that is, 50 students) was exposed to the negative group stereotype whilst the other half was exposed to the positive group stereotype.

The manipulation of permeability entailed telling participants that it was either easy or difficult to move between VC and UKZN and also to make the transition to the different educational environment. The high permeability condition, for example, was told that current research and experience shows that it is easy to transfer from VC to UKZN, and that students transferring between institutions find it easy to make the transition to the different educational environment, cope well with different styles of lecturing and assessment, and adjust quickly to unfamiliar social networks. Being told the converse resulted in conditions of low permeability, as participants were made to believe that transferring between institutions is difficult and they would be unable to cope or adjust to the new setting. Half the group (that is, 50 students) was told that it is easy to move between groups whilst the other half was told the opposite.

The dependent variable of cognitive performance abilities was measured by Raven's Advanced Progressive Matrices (APM). The APM is a psychological instrument which examines non-verbal intellectual abilities by means of problem solving tasks (Foxcroft & Roodt, 2005). The test assesses a range of non-verbal cognitive abilities which makes it ambiguous and believably congruent with the various manipulations of the alleged skills required by the task. Such

ambiguity around the skills required to correctly respond to the APM has made it a useful tool to utilize in STL research, which would generally use the same test to invoke a threat or lift about one's ability to succeed at the task. The APM has items which are ambiguous enough to be plausibly congruent with both the positive and negative stereotypes invoked by this study. A study conducted by Brown and Day (2006) confirmed the efficacy of the APM in measuring the effects of stereotype threat. The test has been shown to be sensitive to stereotype threat as it also acknowledges environmental determinants of intellectual performance which makes it useful for a study suggesting social influences on performance outcomes (Raven, 2000). An example similar to the items found in the test (but not an actual item of the test) can be viewed in Appendix 2 (Raven, 2000, p. 2).

The Shipley Institute of Living Scale was initially included in the design as a covariate in this study but was not included in the data analysis for reasons that are explained in the next chapter. The Shipley Institute of Living Scale (1940) measures general intellectual functioning (Senior, 2001). This study did not administer the entire Shipley Institute of Living Scale. It was just the abstraction subtest that was administered to serve as a covariate. This paper now refers to the Shipley Institute of Living Scale abstraction subtest as the 'SILS'. Even though most STL research makes use of previous SAT scores as covariates, this study has chosen to administer the SILS to serve this function. The SILS would presumably be a more accurate measure of prior performance abilities as it is not a self-report measure, as would be the case of asking students to indicate previous academic marks. Hence, it is less vulnerable to errors in recall or malingering. Also, the SILS correlates well with other measures of intellectual functioning. Of particular interest to this study, Senior (2001) reports that data from 20 studies indicate that the SILS correlated with the APM at $r = .72$. The APM is the dependent measure task of this study. Even though both the APM and the SILS evaluate abstract performance abilities, they look and feel very different from each other, which rules out possible practice effects between the measures. Thus, the SILS appeared to be a useful test to administer as a covariate to this experimental design. A copy of the SILS abstraction subtest can be viewed in Appendix 3.

As has been mentioned, group status (threat and boost) and group boundary permeability (high and low) were the independent variables in this study and APM performance was the dependent variable. There were four experimental conditions/cells once each level of group status was

crossed with each level of permeability. Therefore, the main effects of group status and group boundary permeability on APM performance were explored, as well as the interaction effect between these variables on task performance. Additional relevant variables were tested by means of this design to determine potentially significant effects and relations. For example, the main/interactional effects of race and group identification on task performance were also explored. These additional variables were also included to allow cross-study comparisons within a broader programme of research.

A diagrammatic representation of the factorial design is illustrated in Figure 3.1 below:

		Group Status	
		Threat	Lift
Group Boundary Permeability	Low	1	2
	High	3	4

Figure 3.1: Factorial Experimental Design

3.4. Sampling

Participants were selected from a preexisting social category, that is, students attending VC. Thus, there were no specific participant selection criteria apart from being a student at VC. This entailed a nonprobability purposive sampling strategy as a specific type of sample was required, combined with elements of snowball sampling (Durrheim & Painter, 2006). Recruitment commenced after permission was obtained from the principal of VC, Mr. Kevin McShane, to conduct this study at VC. Participants were recruited on the VC campus by means of posters, business cards, face-to-face interaction, and word-of-mouth. Students were approached by the researcher whose identity as a UKZN student was concealed due to confounding effects that it could have had on task performance.

Participation was entirely voluntary and students who were keen to participate added their names to a list for further contact regarding convenient dates and times for participation. It was estimated that each experimental condition would last approximately 45 minutes. Therefore, an incentive of R30 was offered for full participation. Participants were also informed that they would be entered into a lucky draw to win a PC netbook.

The sample consisted of 100 participants, all of whom were full-time VC students. There were 25 participants in each cell. In terms of demographics, the sample comprised 62 black African participants, 12 coloured participants, 8 Indian participants, 17 white participants, and 1 'other'. Of these, 57 were male and 43 were female. 3 participants were first language Afrikaans speakers, 36 were English speakers, 50 were first language IsiZulu speakers, 9 were IsiXhosa; and 2 were 'other'. The demographics reported here were requested at the very end of the experimental materials.

3.5. Measures

Three sets of measures were administered in the form of a booklet. In the order of administration, these were the Shipley Institute of Living Scale, Raven's Advanced Progressive Matrices, and the Social Identity Inventory (SII). Each of these measures will now be explained.

3.5.1. Shipley Institute of Living Scale (SILS)

This subtest consists of 20 items and measures "general intellectual functioning". It was included as a pre-manipulation estimate of cognitive ability to potentially increase the power of the design by including it as a covariate. Participants were presented with a sequence of numbers, letters, and words with the last part of the sequence missing, and they were required to complete the missing part of the sequence. This task assesses attentional abilities, the capacity for abstract thinking, cognitive flexibility, processing speed, analytical abilities, long-term memory, vocabulary, and numeracy (Senior, 2001). Senior (2001) reports a reliability coefficient of $\alpha = .89$ for the SILS abstraction subtest. Neither the reliability nor the validity of this test appears to be problematic.

3.5.2. Raven's Advanced Progressive Matrices (APM)

This is a test of intellectual ability. The dependent variable of performance abilities was measured by the APM. Test takers were asked to choose (from a list of options) the missing segment required to complete the pattern. Due to time constraints, this study did not administer the entire test of 36 items. Arthur and Day (1994) and Bors and Stokes (1998) developed short forms of the APM scale in order to combat lengthy administration times. Bors and Stokes revised the APM short-form created by Arthur and Day as they believed that the items on the newly developed short-form were too easy. However, they advise that the first two items of Arthur and Day's short-form (that is, items 4 and 8) combined with the short-form which they had developed, would make for time efficient administration without compromising the reliability and validity of administering the entire APM scale (Bors & Stokes, 1998).

Therefore, this study made use of the two practice items from the APM, the short-form of Bors and Stokes as it is believed to be an improvement on that of Arthur and Day, as well as the two easiest items of the scale developed by Arthur and Day. These two items were added because earlier studies had found Bors and Stokes version too difficult for Pietermaritzburg undergraduate students. Introducing two easy items would then reduce the floor effect of performance outcomes. The Bors and Stokes short-form correlated slightly more with the full APM than did that of Arthur and Day (1994) ($r = .92$ versus $r = .90$). In total, 15 items of varying levels of difficulty were administered in this study. These include items 1, 2, 4, 8, 10, 12, 15, 16, 18, 21, 22, 28, 30, 31, and 34. It was essential that the selected items were of varying levels of difficulty and were neither too easy nor too difficult.

The APM has been well-validated for various ethnic and socioeconomic status groups. In terms of its psychometric properties, it has good test-retest reliability ($\alpha = .7 - .9$), internal consistency coefficients are between $\alpha = .8$ and $.9$, and it is concurrently valid with most intellectual tests (Foxcroft & Roodt, 2005). Being a form of a non-verbal intelligence test, language barriers are minimized between test takers and it is suitable for cross-cultural use, thus enhancing the validity of the results (Foxcroft & Roodt, 2005). Due to its cultural fairness, it is deemed one of the best tests to be used for STL research, which often engages in comparative studies across cultures.

3.5.3. Social Identity Inventory (SII)

The SII was developed to assess a wide range of SIT variables. This scale was developed by Michael Quayle, who is the supervisor of this dissertation as well as the grantholder for the programme of research which this study falls into. This programme of research involves a series of studies exploring the relevance of SIT on STL by systematically testing the effect of SIT sociostructural variables such as permeability, stability, legitimacy, conflict and identifiability on STL. The SII has been piloted and tested in previous studies which slot into the principal study, generally yielding favourable reliability and validity. This study will only make mention of the pilot studies and previous studies of the principal study which were pertinent in establishing the reliability of the SII. The scale was first piloted in 2008 on 23 Psychology Honours students at UKZN. Thereafter, it was used in study 1 of the principal study in 2008, using 60 Humanities students at UKZN. The reliability of the scale was again established in study 2 of the principal study in 2008, with 102 Science students at UKZN. It was then revised and re-piloted in 2009 with 36 UKZN postgraduate Psychology students.

The inventory is made up of the following subscales (see Appendix 4 for the complete inventory): STL Manipulation Comprehension, Subjective Experience, Effort, Achievement Motivation, Stereotype Agreement, Ingroup Homogeneity, Outgroup Homogeneity, Group Differentiation, Ingroup Identification, Individual Identifiability, Group Identifiability, Status Legitimacy, Stability, Permeability, Intergroup Conflict, Realistic Threat, Symbolic Threat, and Category Saliency. There were also scales of Academic History, Social Desirability, and Demographic details. These subscales measure variables of SIT which are useful in understanding STL phenomena – for example, legitimacy and stability. Even though not all of these subscales are critical to the study at hand, all were retained to allow cross-study comparisons that are beyond the scope of this study. The following subscales were essential to understanding the effects of group boundary permeability on performance outcomes in the present study: STL Manipulation Comprehension, Stereotype Agreement, Ingroup Identification, and Permeability. The 7 point rating scale for each subscale in the SII ranged from 1) strongly disagree, 2) disagree, 3) somewhat disagree, 4) neither disagree nor agree, 5) somewhat agree, 6) agree, to 7) strongly agree. The ‘Stereotype Agreement’ subscale only had a 4 point rating scale.

Below is a description of what each subscale included in the data analysis sought to measure. An item example is included in the following description of each subscale used in the study analysis whilst complete subscales can be viewed in Appendix 4.

The study manipulated group status as well as perceptions of group boundary permeability by invoking either positive or negative stereotypes about the groups concerned. The STL Manipulation Comprehension subscale aims to determine whether participants comprehend the manipulation which they have just received. There are 8 items on this subscale. An example of an item is: *Based on the description above, VC as a group have a good reputation with respect to the Raven's Advanced Progressive Matrices.* The reliability of this subscale in the first pilot study was $\alpha = .69$, $\alpha = .32$ in study 1, $\alpha = .81$ in study 2, and $\alpha = .95$ in the re-pilot study.

As opposed to the STL Manipulation Comprehension, which examines the extent to which the manipulations are comprehended, the Stereotype Agreement subscale explores the degree to which participants endorse the manipulations. The 6 items on this subscale were placed at the end of the booklet in this study in order to determine whether the manipulations were congruent with students' experience of the dependent task. An item on this subscale is: *How do you think the typical UKZN student would have PERFORMED on the Raven's Advanced Progressive Matrices task?* The reliability of this subscale in the first pilot study was $\alpha = .97$, $\alpha = .58$ in study 1, and $\alpha = .68$ in study 2.

The Ingroup Identification subscale assesses the degree to which participants identify with VC. The measure has 8 items (Costarelli, 2007; Crisp & Beck, 2005; Ellemers, Kortekaas & Ouwerkerk, 1999; Schubert & Otten, 2002; Verkuyten & Nekuee, 1999), one of which is: *My group is an important part of who I am as a person.* The reliability of this subscale in the first pilot study was $\alpha = .85$, $\alpha = .62$ in study 1, $\alpha = .74$ in study 2, and $\alpha = .77$ in the re-pilot study.

The Permeability subscale assesses an individual's perceptions of whether group members can easily transfer between groups and become fully fledged members of the new group. In other words, it measures whether VC students believe that they can transfer to UKZN and whether UKZN students are able to move to VC with ease. There are 7 items on the Permeability

subscale. An item on this scale is: *A VC student can easily become a UKZN student*. The reliability of this subscale in the first pilot study was $\alpha = .70$, $\alpha = .70$ in study 1, $\alpha = .72$ in study 2, and $\alpha = .86$ in the re-pilot study.

The following Demographic variables were recorded at the end of the booklet: Sex (with the choice of Male or Female), Race (with the choice of Black, Coloured, Indian, White, or Other), Home language (with the choice of Afrikaans, English, IsiZulu, IsiXhosa, or Other).

3.6. Procedure

As aforementioned, participants were recruited on the VC campus. Once they indicated that they were interested in participating in the study, their names and contact details were added to a list for further contact. Thereafter, they were contacted and if they indicated that they were still interested in participating, then a time slot was negotiated. Ideally, 15 participants were required for each time slot. It was anticipated that each experimental group would last approximately an hour – 45 minutes to answer the booklet and an additional 15 minutes for administrative processes. However, to be cautious, each experimental slot was scheduled 1.5 hours apart. It was found that the participants took approximately 45 minutes longer to answer the booklet than had been anticipated. The experiments were scheduled for weekday afternoons for purposes of convenience for a sample comprising full-time university students.

On the day of the experimental slots, participants were each sent a text message reminding them of the time and venue of the session. Upon arrival, each participant received a card with a number on it. They then sat at a seat which corresponded with the card number. The cards handed to participants were thoroughly shuffled in order to ensure that seating arrangements were random and to avoid friends receiving consecutive numbers and being seated next to each other. This randomization process ensured that groups of friends would not systematically fall into the same cell or status condition.

Once seated, I introduced myself as a researcher who was exploring academic performance at tertiary institutions. My identity as a UKZN student was not mentioned. Voluntary participation

and the debriefing session that would take place at the end of the session were explained. Thereafter, each participant was handed an informed consent sheet, a SILS abstraction subtest, and a booklet respectively. Each booklet consisted of a manipulation sheet, STL Manipulation Comprehension items, selected items from the APM, and the SII. There were 4 different types of booklets, each based on the combination of manipulations of an experimental cell.

Each of the 4 types of booklets had a unique code. For example, a booklet from the threat x high permeability cell had a code of THP whereas a booklet from the boost/lift x low permeability cell had a code of BLP. The order in which the booklets were handed out to participants was calculated by a randomization schedule using the unique code of each cell. This ensured that participants were randomly allocated to each cell. The SILS subtest was detached from the booklet and answered prior to opening the booklet, and participants were not allowed to return to the SILS once they had looked at the booklet. This was in keeping with its purpose as a pre-manipulation test of intellectual functioning.

The SILS test and the booklet were collected as soon as they were answered. Afterward, participants were debriefed. The true nature of the study, the deception involved and my identity as a UKZN student were disclosed. A copy of the debriefing sheet can be found in Appendix 5. In order to avoid future participants from viewing the true nature of the study, participants were not given a debriefing sheet to take away. Participants were further requested not to share any of the information given in the debriefing session with any of their friends. Time was allowed for questions and a discussion around any concerns. On their way out, participants were each given R30 in cash for which they filled out a sign-up list (with their name, contact number and signature) confirming that they received R30. They were also informed that the sign-up list would be used to do the draw for the PC netbook and that the winner would be contacted once the draw was finalised. The sign-up list could not be linked to individual answer booklets, thus anonymity was not compromised.

Data collection took place over three days. On the first day, two sessions took place, each lasting 1.5 hours. Three sessions were scheduled on the second day, and two on the third day. There were seven experimental sessions in total. There were 13 participants in the first session; 19 in

the second session; 18 in the third; 8 in the fourth; 17 in the fifth; 13 in the sixth; and 12 participants in the seventh session. Text messages were sent out to all phone numbers on the initial list used to recruit participants thanking them for their participation and informing them that I did not require any more participants for this study.

3.7. Data analysis

The data was entered into SPSS Version 15.0 for Windows. Both the SILS and APM were scored. A correct answer was scored 1 and an incorrect or missing answer was scored 0. The averages of the answers were calculated for both the APM and the SILS separately and the final score fell between 0 and 1. No norms or advanced scoring procedures were applied to scoring these tests as such norms are not available for South African multicultural tertiary education contexts. Thereafter, the SII data was coded. Negative responses on the rating scales were given the lower codes, whilst the positive responses were given the higher values (for example 'strongly disagree' was coded 1 whereas 'strongly agree' was coded 7). Certain items were additionally reverse-coded. Items which were reverse-coded were those which read to the contrary to what the construct concerned sought to measure.

Next, reliability analyses were done for the scales and subscales. Subscales on the SII which yielded poor reliability were excluded from the analysis. General descriptive statistics and frequency distributions were then computed for each scale and subscale. Frequency distributions are a method of reorganizing data in a more simplistic and comprehensible form, giving one a sense of what the data is saying, whilst descriptive statistics give a feel of the distribution of scores in the dataset (Howell, 2007).

A factorial Analysis of Variance (ANOVA) was employed to analyse the data as it allowed for the analysis of numerous variables (Howell, 2007). ANOVA not only permits the exploration of the effect of each independent variable on the dependent measure, but also allows for interactions between variables to be detected and analysed and numerous hypotheses to be tested simultaneously (Durrheim, 2002). Apart from group status (threat and boost) and group permeability (high and low), additional variables were included in the analysis to check for other

significant effects and relations. For example, the main/interactional effects of race and group identification on task performance were also explored.

3.8. Ethical considerations

Ethical clearance for this study was obtained from the University of KwaZulu-Natal Humanities, Development, and Social Sciences Ethics Committee (HSS/0132/08D). Consent was also obtained from the principal of VC to conduct this study on the Pietermaritzburg campus. He was keen and enthusiastic, offering his full support and that of the SRC leader. The rest of this section unpacks the research ethics encompassing human participants which this study accounted for (Wassenaar, 2006).

Firstly, the researcher explained to potential participants what participation in the study entailed. Students were informed that their participation was entirely voluntary and that, if they wished to withdraw at any time, they were free to do so with no questions asked or penalties for discontinuation. It was required that participants not record any identifiable details on any of the answer sheets as their participation was to be entirely anonymous and in this sense confidentiality was guaranteed. Student names on the sign-up list could not be linked to individual experimental booklets, ensuring that anonymity was not compromised. If students (all above the age of 18) were still keen to participate, then they were required to sign a declaration stating that they were informed of the study and their rights, and that they subsequently consented to participate in the study (see Appendix 6). In comparison to the time spent answering the booklet, the incentive offered for participation in the study was not so excessive that it could not be turned down. There were a fair number of students (approximately every third group approached) who did confidently turn down the option of participating despite the incentive, which may suggest that the incentive was unlikely to have compromised the voluntariness of participation in this sample which may have posed an ethical dilemma.

This study did, however, involve deception. An aspect of this deception refers to the manipulations (of status and permeability) undertaken by this study – as has been explained earlier in this chapter. It was imperative that the participants in the different cells were variably

deceived in order to test the effects that such manipulations would have on performance outcomes; as such manipulations formed the essential feature of this study and knowledge of STL has been shown to negate its effects. Thus, the manipulations were mere stereotypes and were not based on valid research as had been claimed by the study. A further aspect of the deception entailed telling participants that the study was examining academic performance at tertiary institutions. The true nature of the study was in fact that it was exploring stereotype effects on task performance. Telling participants this would have confounded performance outcomes. Without such deception, the desired effects could not be investigated and explored. However, (1) the categories (of VC and UKZN) have been chosen to minimize risk (unlike STL studies that invoke powerful categories such as race and gender) due to there being less stigma attached to the stereotypes of these categories, and (2) participants were fully debriefed afterward and given an opportunity for concerns to be raised.

One of the potential risks in deceiving the participants about the true nature of the study is that had the students known the true nature of the study, perhaps they would not have opted to participate. In this sense, consent to participate was not entirely informed but it was entirely voluntary and participants were able to leave at any stage in the experiment. Even though the categories of VC and UKZN are less stigmatized and invoking such categories are less likely to cause as much harm as invoking categories such as race and gender, it remains that the deception may potentially have long-lasting effects. During the debriefing session, participants were informed that the deception was not based on any valid research. Moreover, participation in this study allowed for participants to be informed around preexisting stereotypes about their institution and they were given tips on how to identify such stereotypes if encountered (see Appendix 5). They may have felt a sense of invasion of their privacy by the deceptions and perhaps a feeling of being used, and possibly resentful due to my affiliation to UKZN. But, based on the discussion prompted by the debriefing session, there was no such apparent harm caused by the deception. There was also the risk that students may be suspicious toward future studies and the possibility of any forms of deception. However, it was explained that not all studies entail such deception. The value of such research and the importance of participation in such studies were emphasized and most participants informally agreed that it was an enlightening experience to be a part of this research study.

3.9. Research challenges

This study was initially meant to be undertaken at both UKZN and VC in order to make essential comparisons between the two groups. But it was later realised that the UKZN population has been exhausted by other studies which slot into the principal study. Therefore, it was only possible to sample VC students whilst UKZN as an institution was used as a contrast to the academic abilities of students at VC. It was subsequently decided that in addition to the four experimental conditions, there would also be a control group. However, due to difficulties encountered with accessing participants and availability of venues at VC, it was decided that having a control group would not be possible. Due to sample size constraints the current study design is consequently a modified version of that which was initially envisaged, and which limits the generalisability of the research findings.

Moreover, a few students in the experimental session had recognized me from the UKZN campus, which could have influenced their performance on the intellectual tests, as well as their responses on the SII. This was revealed to me at the end of the session and after the debriefing was over.

In addition, this study was conducted under highly artificial experimental conditions and may therefore lack external validity. Therefore, these results may not be confidently applied to explain real-world experiences. However, as Steele *et al.* (2002, p. 387) explain, "...there is the logistical and ethical difficulty of manipulating stereotype threat in real-world test-taking situations." And as they further justify "The laboratory allowed us to construct the meaning of tests – and thus their stereotype relevance – in ways that would be difficult to construct in real life" (Steele *et al.*, 2002, p. 387).

Chapter Four: Results

The results section begins with an overview of the reliability analyses and descriptive statistics computed on each of the measures used in this study. Thereafter, the central findings of this study are illustrated.

4.1. Reliability analysis and descriptive statistics

A reliability analysis was conducted to determine whether the items comprising the measures used were in fact consistent. If certain items did not contribute significantly to a measure, it was dropped. The internal consistency of each measure/subscale used in this study was explored by means of Chronbach's coefficient alpha, denoted as α . A reliability coefficient of .70 is usually considered adequate for instruments used for research purposes (Nunnally, 1978 in Finchilescu, 2002). A reliability coefficient below .60 is considered unacceptable; between .60 and .70 as adequate; between .70 and .80 as respectable; between .80 and .90 as a very good indicator of reliability (DeVellis, 2003).

4.1.1. SILS

This is a measure of academic performance which consists of 20 items for which $\alpha = .78$ ($M = .63$, $SD = .16$, range = .70, skewness = -.17, kurtosis = -.91). Although it was of respectable reliability, the SILS was not used in the analysis in this study due to the limited power which it added to the findings.

4.1.2. APM

For the Raven's APM scale, which is made up of 15 items, $\alpha = .72$. The scale was, therefore, respectably reliable ($M = .39$, $SD = .20$, range = 1.00, skewness = .93, kurtosis = .94). As predicted, performance on the APM seemed to have a substantial relationship with performance on the SILS, as they correlate at $r = .57$.

4.1.3. STL Manipulation Comprehension

The STL Manipulation Comprehension produced adequate reliability of $\alpha = .71$ ($M = 4.81$, $SD = .95$, range = 3.38, skewness = $-.27$, kurtosis = $-.45$).

4.1.4. SII

The SII comprises many subscales which explore the variables of SIT. Even though all of the subscales were included in the materials, only certain subscales were useful for this study. The complete inventory was administered to allow for cross-study comparisons for future research purposes. The following SII scales were included in the analysis for this study: Permeability; Ingroup Identification; and Stereotype Agreement. The internal consistency of each of these scales, along with its frequency distribution will be described here.

4.1.4.1. SII scales included in this study

a. PERMEABILITY

This 7-itemed scale produced α of $.79$. This suggests respectable reliability for the Permeability subscale ($M = 4.32$, $SD = 1.23$, range = 5.00, skewness = $.25$, kurtosis = $-.40$).

b. INGROUP IDENTIFICATION

This subscale has 8 items and $\alpha = .66$. When item 2 was dropped, reliability increased to $.73$ which represents respectable levels of reliability for research instruments ($M = 4.98$, $SD = 1.07$, range = 5.71, skewness = $-.93$, kurtosis = 1.48).

c. STEREOTYPE AGREEMENT

The 6 items which constitute this subscale were respectably reliable at $\alpha = .72$ ($M = 2.22$, $SD = .42$, range = 2.33, skewness = $.57$, kurtosis = $.48$).

Table 4.1 shows the reliability coefficients (α) for the scales and subscales used.

Table 4.1: Reliability Coefficients for scales/subscales used in this study

Scale/Subscale	α
SILS	.78
APM	.72
STL Manipulation Comprehension	.71
Permeability	.79
Ingroup Identification	.73
Stereotype Agreement	.72

Overall, most of the measures used in this study were fairly reliable.

4.2. Findings

4.2.1. The effect of the status and permeability manipulations

An independent samples t-test examining the success of the manipulation of group status demonstrates a significant effect, $t(98) = -1.91, p = .05$. This suggests that the status manipulations were successfully comprehended and accepted by the participants. Although a t-test revealed that the permeability manipulations were unsuccessful and not accepted in the way that the status manipulations were as there appears to be no significant relationship between the permeability manipulations and participants' reported experiences of the manipulations, $t(98) = .76, p = .44$. However, an ANOVA model of permeability manipulations by group status revealed a significant effect, $F(1, 96) = 4.98, p = .02, d = .04$. Therefore, it is evident that the participants' experiences and acceptance of the permeability manipulations was largely influenced by their group status, that is, whether they were exposed to threat or boost conditions. Hence, the status manipulations influenced participants' experiences of the permeability manipulations.

4.2.2. The effects of group status and permeability on task performance

The central hypothesis of this study was that varied perceptions of group boundary permeability would modify STL effects to bring about variability in task performance outcomes. Contrary to these predictions, a univariate ANOVA model examining APM task performance by group status (threat and boost) and perceptions of permeability (high and low) was non-significant, $F(3, 96) = .15, p = .92$. Group status (threat and boost), on its own, had no significant effect on participant performance on the APM, $F(1, 96) = .11, p = .73$. Likewise perceptions of group boundary permeability (high and low) had no direct effect on performance on the APM, $F(1, 96) = .11, p = .73$. Additionally, there was no significant interaction effect between group status and permeability, on task performance, $F(1, 96) = .23, p = .63$. Hence, group status and permeability, as main and interaction effects were unable to account for the variability in performance on the APM.

4.2.3. Race as a factor of variability in performance outcomes

On the other hand, an ANOVA model on APM task performance by race, group status (threat and boost), and permeability (high and low) was significant, $F(7, 92) = 2.13, p = .04, d = .14$. This model revealed that race was able to significantly account for the variability in performance on the APM, $F(1, 92) = 8.25, p = .005, d = .08$. This analysis also showed that there was a significant interaction effect between race and group status on task performance, $F(1, 92) = 4.10, p = .04, d = .04$. However, there was no significant interaction effect between race and group permeability on task performance, $F(1, 92) = .70, p = .40$. There was no significant interaction effect between race, status, and permeability, $F(1, 92) = 1.83, p = .17$. A one-way ANOVA model on stereotype agreement by race demonstrated that there was no significant effect for race on stereotype agreement, $F(1, 99) = .24, p = .61$. In order to further investigate the relationship between race and task performance, this group was split into a black group and a non-black group to explore simple effects. The black group comprised black participants whilst the non-black group comprised the coloured, Indian, white, and other race groups. Figure 4.1 below displays the distribution of black and non-black participants across the various experimental groups.

<u>Race</u>			<u>Permeability</u>	
			High	Low
Black	Status	Threat	14	16
		Boost	18	14
Non-Black	Status	Threat	11	9
		Boost	7	11

Figure 4.1: Distribution of race across the experimental groups

Once the race split had been done, profile plots revealed a reversal effect in which the black group performed much better in the threat condition than they did in the boost condition, while the opposite was found for the non-black group. The non-black boost group were the superior performers, whilst the black boost group were the worst performers in this sample.

4.2.4. The effect of group status and permeability on identification patterns

Even though a correlational analysis suggests that there is no relationship between APM performance and ingroup identification ($r = -.03$), a 2 x 2 x 2 ANOVA model on ingroup identification by race (black and non-black), perceptions of permeability (high and low), and group status (threat and boost) was significant, $F(7, 92) = 2.19, p = .04, d = .14$. In addition, group status, as a main effect, significantly impacted ingroup identification, $F(1, 92) = 5.24, p = .02, d = .05$. This suggests that the research manipulations (that is, the stereotypes invoked) had an influence on the levels of ingroup identification. Even though permeability did not have a significant effect on ingroup identification, $F(1, 92) = .18, p = .66$, there was a significant interaction effect between group status and permeability on the degree of ingroup identification, $F(1, 92) = 8.12, p = .005, d = .08$. The interaction effect between status and permeability on ingroup identification is displayed in Figure 4.2 below. It demonstrates that, under conditions of high permeability, both the threat and boost groups had very different identification patterns, but under conditions of low permeability, the groups seem to have displayed very similar levels of identification with the ingroup. Very importantly, under conditions of high permeability the

boost group identified much stronger with the ingroup than the threat group did. Race did not have a significant effect on identification patterns, $F(1, 92) = 1.33, p = .25$. In addition, there were no significant interaction effects between: group status and race, $F(1, 92) = .15, p = .69$; permeability and race, $F(1, 92) = .72, p = .39$; group status, permeability, and race, $F(1, 92) = .82, p = .36$.

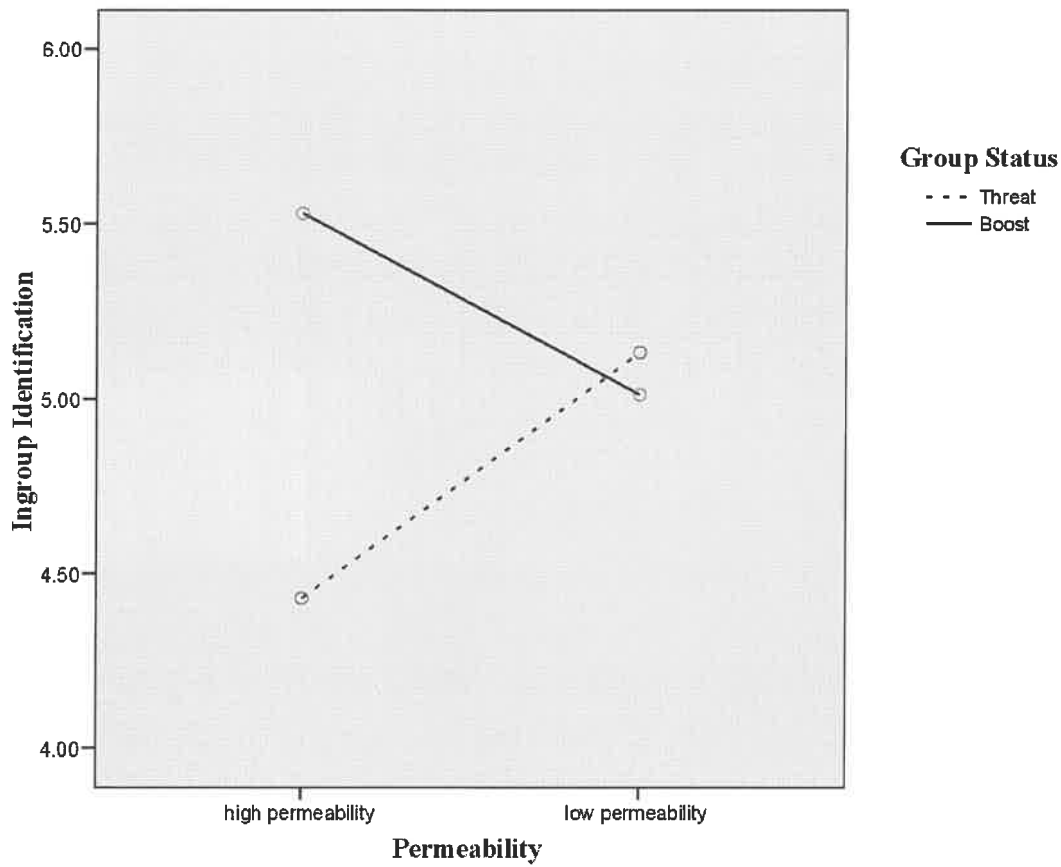


Figure 4.2: Profile plots of the interaction effect between permeability and group status on ingroup identification

4.2.5. Overview of results

Even though the group status manipulations of this study were comprehended and endorsed by participants, the permeability manipulations were unsuccessful. However, group status does seem to affect participants' experiences of the permeability manipulations. The results of this study clearly indicate that group status and perceptions of permeability had no direct influence on APM performance outcomes within this sample group. Race, however, had a large influence in explaining the variability in APM performance outcomes in which there were clearly reversed performance results between the black and non-black students in the different status groups. This finding was, however, post-hoc. Furthermore, group status and permeability seemed to have powerful effects on the levels of ingroup identification, whereby threat and boost groups with perceptions of high boundary permeability showed very different identification patterns. It was noted that under conditions of high permeability, the boost groups identified significantly more with the ingroup than the threat groups did. But when they perceived low permeability, the threat and boost groups displayed similar levels of identification with the ingroup. Race did not significantly influence levels of identification, and levels of identification did not significantly influence task performance.

Chapter Five: Discussion

It is clear from the above findings that the central hypothesis of this study has not been directly supported within this sample group. Stereotype Threat and Lift did not directly influence performance outcomes in the predictable ways anticipated by the literature. Likewise, perceptions of group boundary permeability failed to significantly influence performance on the APM. These findings are contrary to the many studies examining the STL effect (Aronson *et al.*, 1999; Katz *et al.*, 1965; Spencer *et al.*, 1999; Steele & Aronson, 1995). This is not to say that this study does not yield findings which corroborate STL effects. It appears instead that STL effects are only clearly evident in the research findings once race is accounted for. In accordance with SIT literature, the above research findings have demonstrated a meaningful relationship between group status (threat and boost) and boundary permeability (high and low) in predicting ingroup identification patterns amongst VC students. Hence, as was anticipated by this study, SIT does have a lot to offer in understanding STL effects.

5.1. Race as a factor of variability in task performance

The research findings strongly indicate that race had a major influence on performance outcomes. Race interacted with STL effects and brought about significant differences in performance outcomes. Thus, race played a central role in this study in explaining STL effects. It is worth mentioning that the racial effect detected by this study was entirely unforeseen and post-hoc. It is also worth noting that participants were only asked to indicate their race at the very end of the experiment. In other words, racial stereotypes were neither intentionally nor systematically invoked by this study.

Once the race group was split into black and non-black groups to analyse the effect of status and race on performance outcomes, a strong reversal effect was noted between the groups. The non-black group performed just as predicted by the literature on STL effects, whereby performance was boosted at the mention of positive group stereotypes but depressed by negative performance stereotypes (Aronson *et al.*, 1999; Cheryan & Bodenhausen, 2000; Katz *et al.*, 1965; Spencer *et al.*, 1999; Steele & Aronson, 1995). The black group on the other hand, performed to the

contrary of the well established STL effects in that they exhibited a strong reversal effect and performed substantially better under threat and worse under boost conditions.

5.1.1. Explanatory models for such diverse reactions to stereotype threats and lifts

5.1.1.1. Multi-threat framework

These findings come as no surprise to Shapiro and Neuberg (2007) who propose a multi-threat framework, arguing that the experience of negative stereotypes need not necessarily create a homogenous experience of depressed performance. Instead, these authors claim that, when under threat, individuals generally respond very differently, and often strategically, to the threat. Whilst some individuals would indeed be impacted negatively by such stereotypes, others would still try to prevail above it by disproving the stereotype, avoiding it, or dis-identifying with the group in order to enhance performance outcomes. This framework suggests that the performance of many stereotyped individuals may in fact not be depressed according to the experienced threat, and that individuals are active and strategic in their responses to stereotypes and such strategy and agency is largely informed by additional group memberships and identity resources. As is evident in the findings at hand, the performance of some under threat was indeed poor, while others excelled at the mention of negative performance stereotypes. This study, therefore, notes a stereotype effect which is contrary to the findings of Steele and Aronson's many studies suggesting that negative stereotypes would invariably depress performance, whilst positive ones would consistently boost performance. However, Shapiro and Neuberg (2007) do not predict that multiple identities would interact with the source and target of threat in the complex way observed here.

The above paragraph is an indication that there exists supporting literature that individuals may indeed respond very differently to the activation of positive and negative performance stereotypes. But why is it that the black groups performed in a pattern so distinct from the non-black groups? Shapiro and Neuberg (2007) also suggest that ingroup members not only respond differently to the experience of a threat but may in fact experience a different threat altogether. These authors add that groups of varying stigma would interpret the threat attached to stereotypes differently. It then follows that in a South African context, in which there is vast

polarization between the levels of stigmatization between the black African and non-black African groups, these groups would experience a very distinct threat from each other.

As is further explained later in this chapter, literature on the topic attributes these performance differences to previous social positions and levels of group identification. So, contrary to some studies (Aronson *et al.*, 1999; Leyens *et al.*, 2000; Steele & Aronson, 1995) which found that stereotype threat effects are entirely situational, the current study suggests that a history of stigmatization or a lack thereof, may influence the way in which stereotypes are experienced and responded to. Therefore, STL effects may not be entirely situational after all. Overall, these reversed performance effects noted imply that there is no homogenous experience of stereotypes or stereotype threat. Indeed, negative stereotypes may improve performance whilst positive stereotypes could depress performance outcomes. The direction of influence depends on the total identity resources in a situation and the ability to strategically utilize them in the context.

5.1.1.2. The use of coping strategies

Crisp *et al.* (2009) state that individuals experience a threat from negative stereotypes when they believe that they do not have the coping resources to deal with the demands imposed by the threat. Likewise, individuals who excel under threatening conditions are able to do so as they perceive that they have the necessary resources to cope with the threat of the stereotype. These authors claim that it is ongoing exposure to negative stereotypes that build such a resource base of coping mechanisms. It would then be expected that black African groups, with a long history of stigmatization and stereotyping, would have developed such coping mechanisms over time, whereas the non-black African groups that have not been subject to negative stereotypes to such an extent would lack in this area of coping mechanisms. Crisp *et al.* (2009), therefore, provide a useful explanation for why the black group excelled under threatening circumstances, while the non-black group succumbed to the threats of the experiment. It is once again emphasized that individuals do not experience and respond to stereotypes alike. Rather, they are of multiple group memberships that can inform strategy and agency in their responses, and past encounters with stigmatization and stereotypes may in fact impact the effects of stereotypes on performance outcomes. However, this has not been considered in the bulk of STL research. For example,

Steele and Aronson (1995) found that individuals with long histories of stigmatization were as susceptible to negative stereotype threat effects as their counterparts were. Even though the results at hand seem to concur to a larger extent with Crisp *et al.* (2009), they are not able to adequately explain the dichotomy of these explanations and concerted research is therefore required to address this gap.

5.1.1.3. The need to disprove social stereotypes

An alternative explanation for the black group performing contrary to that which was expected of them when under threat is that they were trying to disprove the stereotype of their group (Shapiro & Neuberg, 2007). And those in the boost condition may have ‘choked under pressure’ when there were high expectations of them, a phenomenon which has previously been demonstrated by Cheryan and Bodenhausen (2000). Such reactions would be typical of a historically denigrated social group that is now trying to prove their group’s worth by disproving traditional group stereotypes regarding inferior cognitive performance of black people in South Africa (Cocchiara & Quick, 2004; Niemann *et al.*, 1994; Rushton, 2002). Such pressure to perform and prove themselves is not required by groups belonging to traditionally high status groups, whose abilities were seldom degraded and disputed. This renders an explanation for the difference in performance between the black and non-black groups by attributing such differences to a need to prove oneself and one’s capabilities. This also highlights that, contrary to SL, positive stereotypes may not always boost performance outcomes.

5.1.1.4. History of prejudice and stigmatization in South Africa

Walton and Cohen (2003) suggest that it is mainly individuals with a history of holding prejudiced attitudes that endorse, and are consequently affected by, stereotypes. These individuals have been identified as those in favour of maintaining the social hierarchy, wanting to preserve their self-image and social dominance. Carter *et al.*, (2006) found that such criteria were met by white and male participants (majority groups), whilst the African-American and female participants (minority groups) in their study were less inclined to endorse, and self-define in terms of, stereotypes. This is a plausible explanation for why the black group (who in South

Africa, specifically, has a long history of discrimination and a minority group status) performed contrary to the expected stereotype effects, whilst the non-black group (who has generally been in support of social hierarchies and have a dominant group status) performed according to the stereotypes experienced.

Thus, according to this line of reasoning, the driving force for the race difference in performance could have been the inherent tendency to either endorse or resist social stereotypes by each of these race groups. Whilst endorsing stereotypes (both positive and negative) would influence performance in the expected way, resisting stereotypes would lead to very different responses to stereotypes than has been anticipated by ST and SL. Hence, individuals belonging to social groups of varying stigma histories are expected to interpret and respond to stereotypes in a very different fashion (Shapiro & Neuberg, 2007). The reversed performance outcomes between the black and non-black groups in this study may be a result of the extent to which each of these groups endorsed the stereotypes invoked. However, the findings at hand fail to fully support this hypothesis as these groups did not significantly differ in their levels of stereotype agreement. Thus, this explanation is inconclusive with regard to the findings at hand.

5.2. The role of SIT's 'identification' in explaining STL effects

Bearing in mind that this study was primarily designed to apply SIT in understanding STL effects, we now turn to the possible explanations which SIT contributes to our understanding of the specific patterns noted in this study. SIT holds that individuals belong to multiple categories and have multiple identities. Previous research has shown that individuals would then identify with the group which is most beneficial to a positive social identity – that is, they would identify with the social group which is positively stereotyped in order to enhance their own social positions and performance outcomes (Amiot *et al.*, 2007; Ellemers *et al.*, 1988; Gaertner *et al.*, 1993). Subsequent to individuals aligning themselves or identifying with particular social identities, they begin to behave in accordance with that which is expected of the newly affiliated group. In the case of intellectual performance, it would then be expected that identifying with an intellectually positively stereotyped group (which may be a superordinate category) would

improve performance outcomes. Seeing that it was only the black group under threat that displayed superior performance on the APM in the threatening condition, it can be assumed that it was only this group that was able to resist the stereotype. The non-black group, in contrast, adhered to the stereotypes associated with even the negative groups. Furthermore, the drive for positive distinctiveness argument does not hold for the black group under boost conditions as they performed poorly when told that their group were superior performers. In accordance with SIT theorizing, these varied performance outcomes presumably demonstrate that these groups were identifying with different social identities and perhaps to different degrees of intensity.

This discrepancy is thus better accounted for by factors which impact levels of ingroup identification. Remember that individuals with poor ingroup identification are less inclined to be impacted by group stereotypes, both positive and negative, whereas individuals with high levels of ingroup identification are more likely to be influenced by group stereotypes (Shih *et al.*, 1999; Smith, 2004). Amiot *et al.* (2007) further explain that individuals from typically high and low status groups tend to have very different identification patterns. Whilst individuals from typically low status groups tend to identify less strongly with new social groups, individuals from previously high status social categories display much stronger ties with their new social identities.

It would then be expected that previously low status groups, such as black Africans in South Africa, would be low identifiers with their recent social identities in comparison to non-black South Africans. Consequent to low levels of ingroup identification, the black group in this study did not self-define in terms of the group stereotype and were thus able to deflect both the positive and negative group stereotypes. Ellemers *et al.* (1997) assert that highly identified individuals (as in the case of the non-black group) would remain committed to their groups under threatening and neutral conditions, hence adhering to the group stereotypes and performing accordingly, and this fits well with the patterns noted for the non-black threat and boost groups' performance outcomes in this study.

Steele *et al.* (2002) confirm that typically low status group members generally dis-identify with the relevant domains of functioning (in this case, the ingroup of concern), whereby dis-

identification could either buffer or boost performance outcomes. These authors suggest that dis-identification could be a collective strategy that has evolved amongst certain groups to deflect negative group stereotypes, hence supporting the argument that certain groups have developed identity resources that can be used strategically to enhance performance outcomes. This boosting effect on performance outcomes was well noted in the black group under threat. It is possible that the black threat group that dis-identified with the social category of being a 'VC student', recategorised themselves and identified with the superordinate category of being a tertiary-level student and this could have potentially boosted their performance instead of threatening it (Crisp *et al.*, 2009; Gaertner *et al.*, 1993). Even though the findings at hand suggest that there is no significant difference in identification patterns between the black and non-black groups, a closer look at the group means suggest that the black groups identified less with the ingroup than the non-black groups did. So, even though these differences are not significant, they do follow the predicted direction of identification anticipated by the literature. These are, however, post-hoc estimations at what may have caused the patterns noted in this study. Therefore, further research is needed to explore the effects of multiple identities on the stereotype-performance relationship.

5.3. Ingroup identification by group boundary permeability and status

This study demonstrated highly significant effects for ingroup identification by permeability and status. It shows that under conditions of high permeability, both the threat and boost groups have divergent identification patterns, while under conditions of low permeability, the groups seemed to display very similar levels of identification with the ingroup. Very importantly, under conditions of high permeability the boost group identified much stronger with the ingroup than the threat group did.

These findings are notably supported by SIT literature which postulates that individuals inevitably seek positive distinctiveness. In accordance with this quest, they would generally dis-identify with a social category bearing a poor sense of identity and attempt to affiliate to a social category associated with a positive sense of identity (Ellemers, 1993). SIT clearly verifies that

under conditions of low permeability, group status (threat or boost) would not influence the degree of ingroup identification as the groups appear to be fixed. Thus, as the findings of this study suggest both the threat and boost groups, when under conditions of low permeability, did identify with the ingroup to a similar extent (Ross, 1977 in Ellemers, 1993).

In accordance with the *status protection hypothesis* of SIT, high status group members with perceptions of permeable boundaries/open groups identified very strongly with the ingroup. This effect is due to the threat of the possibility of sliding into a lower status group. Therefore, these individuals clutched onto their elevated social identities in an attempt to safeguard it (Ellemers *et al.*, 1988). It is for this reason that the boost group in this study, when under conditions of high permeability, seemed to identify very strongly with the ingroup.

SIT's notion of the *status enhancement hypothesis* is substantiated by the threat group's low identification patterns under conditions of high permeability (Ellemers *et al.*, 1988). This theory predicts that low status group members would tend to dis-identify (or have weak identification) with a social category to which a threatening identity was associated, if the possibility of movement to a higher social category was possible (that is, in open groups). As such, we see that the threat group identified poorly with the ingroup when they believed that they could flee the negative social identity as the opportunity to do so was afforded by permeable group boundaries.

Overall, the findings of this study clearly indicate that individuals strategically use their social identities to enhance performance outcomes. These social identities include extra-experimental identities such as race. This study, however, did not indicate significant results for identification by performance, as varying levels of identification did not seem to influence performance outcomes on the APM. Therefore, in as much as identification was clearly impacted by the stereotypes invoked, there remains a disjunction between ingroup identification and APM performance. This is not to say that identification does not impact STL effects, but rather that more research is needed to clarify the differential effects of ingroup identification on APM performance and thus the STL effect.

Chapter Six: Conclusion

6.1. Overview of results and conclusions drawn

The above findings suggest that group status and perceptions of permeability had no direct influence on task performance outcomes as this study had predicted. However, as anticipated by this study, these variables seemed to have powerful effects on the levels of ingroup identification. Hence, this sample showed insignificant results for the proposed hypotheses, that is, (1) Whether the STL effect is replicable in a South African tertiary education setting; (2) The degree to which individuals' identification with the social category (in this case, the institution) to which they belong influences STL effects; (3) The influence that perceptions of group boundary permeability (high or low) would have on STL effects. Even though the findings do not indicate any clear relationship between group identification and task performance, they do demonstrate that race clearly influences task performance.

In accordance with SIT literature, the above research findings have demonstrated a meaningful relationship between group status (threat and boost) and boundary permeability (high and low) in predicting ingroup identification patterns amongst VC students. SIT was usefully applied to explain the diverse STL effects noted in this study by demonstrating that identification with the ingroup may have mediated the impact of group stereotypes on individual experience and that identification is partially dependent on perceptions of group boundary permeability. Hence, as was anticipated by this study, SIT does have a lot to offer in understanding experiences of STL. SIT also made a useful contribution in explaining that, by virtue of belonging to multiple social categories, individuals would also have multiple identities which would certainly impact performance outcomes. These identities are unique by nature and should be expected to result in varied performance outcomes as well. STL literature has inadequately accounted for these areas of diverse performance outcomes and the role that extra-experimental identities play in this regard.

Regardless of the form of action for or against stereotypes, however, it is evident that group members neither accept nor avoid these stereotypes. Instead, when faced with threatening stereotypes, by virtue of belonging to multiple groups, individuals seem to use different identity

resources to respond strategically to stereotypes. It is also evident from the findings of this study that individuals belonging to social groups of varying stigma histories would interpret and respond to stereotypes in a very different fashion as different social groups have unique resources for coping with such circumstances (Crisp *et al.*, 2009; Shapiro & Neuberg, 2007). This forms the interface between STL and SIT applications. In light of the present findings, we observe that individuals from typically high status groups are more vulnerable to STL effects than are traditionally low status group members, who have been shown to be less inclined to endorse stereotypical ideation and who have more mature strategies for deflecting stereotypes. So, STL effects may not be entirely situational after all and may in fact be influenced by previous stigmatization and social positions held.

In terms of the question raised in Chapter 1 with regard to whether fostering perceptions of sameness and open groups would in fact improve performance outcomes as opposed to yielding detrimental performance outcomes, the diverse racial performances in this study renders this query inconclusive. All that can be said is that if society fosters a sense of open groups, then individuals belonging to groups stigmatized in certain domains of functioning seem able to dis-identify with the negatively stereotyped group and affiliate to a positively stereotyped group which would then enhance performance. This dis-identification with a negatively stereotyped group and recategorising to a positively stereotyped group would not be possible if the groups appeared to be fixed and impermeable.

6.2. Limitations of the present study and recommendations for future research

This study showed clear effects for ingroup identification by race, status and permeability as well as task performance by race. These relationships were post-hoc and therefore not anticipated. It is highly unlikely that this study activated any racial stereotypes as each participant was only asked to indicate their race at the very end of the booklet. The strong racial divide in the dataset is diagnostic in that it alerts us that the effects of the apartheid system are still rife in post-apartheid society. Due to the powerful racial effects noted in this study, further research on the role of race as a mediator of the stereotype-performance relationship is needed. This is

particularly useful within a South African context in which most segregation and discrimination are based on racial grounds.

Due to the limited number of students that could be accessed by this study, there was no control group in the research design, which limits the generalisability of the research findings. This study was guided by a strictly experimental design, which further restricts the external validity of the findings. For a full discussion of the shortcomings of this study refer to the research challenges section of Chapter 3 of this write-up. It is recommended that future research attempt to study the effects of permeability on stereotype effects in more natural settings.

6.3. Implications for interventions

As mentioned in Chapter 1, this study, located within a South African context, aimed to examine the effects of social stereotypes (both positive and negative) on performance abilities. It can be concluded that, contrary to popular STL theorizing, individuals under threat would at times behave counter-stereotypically and positive stereotypes may in fact depress performance. Thus, there is no homogenous experience of stereotypes. Even though this is not the ideal situation for interventions as it becomes difficult to diagnose and intervene in a multifaceted dilemma, it is also hopeful in the sense that not all individuals treated stereotypically would succumb to the negative expectations. This study clearly demonstrates that stereotypes are a unique experience and should thus be approached accordingly. Furthermore, there is clearly a need to move away from only addressing negative stereotypes and to begin examining the issues associated with positive stereotypes (Cocchiara & Quick, 2004). Overall, the dynamic nature of stereotypes observed in this research affords a hopeful sense in that stereotypes are far from immutable and inescapable. This study strongly demonstrates that, contrary to popular belief, minority group members are not the most vulnerable to stereotype effects in every situation. Therefore, majority group members (such as non-black groups and males) should also feature in interventions for stereotype effects on performance outcomes.

Additionally, having indicated that STL is not entirely situational and may be influenced by multiple identities, merely changing the nature of performance situations is not enough to

counter stereotypes. Instead, it may prove useful to address underlying social identities associated with negative connotations prior to intervening in the actual stereotype-laden situations. Seeing that positive social identities may be used strategically to deflect the effects of stereotypes, it may be useful to foster performance contexts which allow for such positive identities to be accessed without threat.

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Appendices

Appendix 1: Manipulation Sheets

Experimental Condition: Boost x High Permeability

PLEASE READ THESE INSTRUCTIONS SLOWLY AND CAREFULLY

Project Aims: The researchers are interested in the academic ability and performance of students in different academic environments and the ease of transition when students transfer between institutions.

Tertiary institutions that are smaller in size and that are more dynamic (such as Varsity College) tend to produce students with significantly **higher** academic ability and performance.

The following features have been found to maximize academic performance:

- Intimate academic facilities
- Small class sizes fostering independent thinking
- Small campuses resulting in greater access to resources
- Small departments resulting in better access to lecturers

As a result students from Varsity College have higher ability and better academic performance than students from UKZN. **Therefore Varsity College students usually perform better than UKZN students on the test of academic ability you are about to complete**, which is called Raven's Advanced Progressive Matrices.

Conversely, tertiary institutions that are larger in size and that are more traditional (such as UKZN) tend to produce students with significantly **lower** academic ability and performance.

Students from small dynamic tertiary institutions (such as Varsity College) who transfer to honours and masters level postgraduate studies at large traditional institutions find it exceptionally easy to make the transition to the different educational environment. Specifically, experience shows that transfer students:

- cope very well with different styles of lecturing and assessment
- are able to develop productive relationships with lecturers
- adjust quickly to unfamiliar social networks.

This study will investigate these relationships by comparing students at Varsity College and UKZN.

Even though Varsity College is likely to do well compared to UKZN, you are still encouraged to try your best.

Experimental Condition: Boost x Low Permeability

PLEASE READ THESE INSTRUCTIONS SLOWLY AND CAREFULLY

Project Aims: The researchers are interested in the academic ability and performance of students in different academic environments and the difficulty of transition when students transfer between institutions.

Tertiary institutions that are smaller in size and that are more dynamic (such as Varsity College) tend to produce students with significantly **higher** academic ability and performance.

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Experimental Condition: Threat x High Permeability

PLEASE READ THESE INSTRUCTIONS SLOWLY AND CAREFULLY

Project Aims: The researchers are interested in the academic ability and performance of students in different academic environments and the ease of transition when students transfer between institutions.

Tertiary institutions that are smaller in size and that are more dynamic (such as Varsity College) tend to produce students with significantly **lower** academic ability and performance.

The following features have been found to maximize academic performance:

- Extensive academic facilities
- Large class sizes fostering independent thinking
- Large campuses resulting in greater access to resources
- Large departments resulting in better access to lecturers

As a result students from Varsity College have lower ability and worse academic performance than students from UKZN. **Therefore Varsity College students usually perform worse than UKZN students on the test of academic ability you are about to complete**, which is called Raven's Advanced Progressive Matrices.

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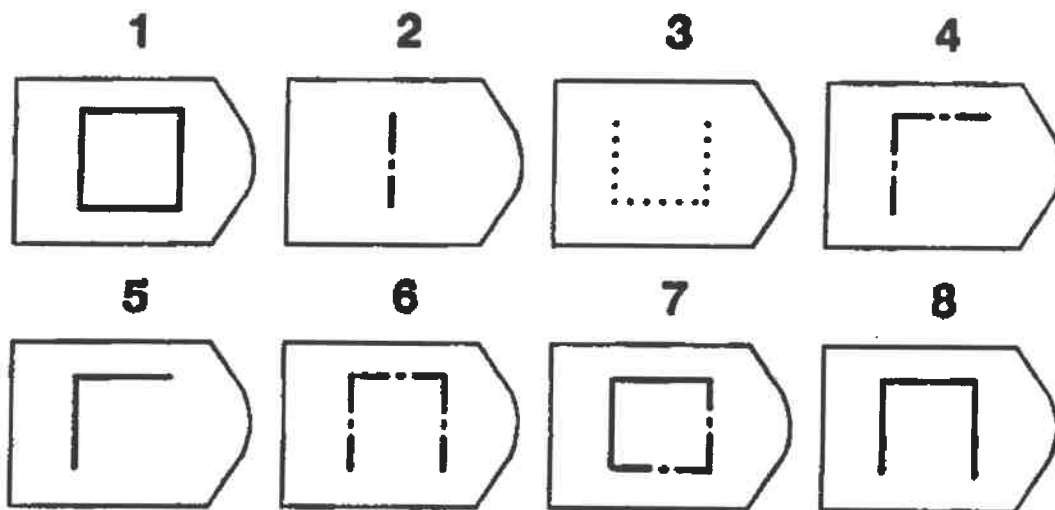
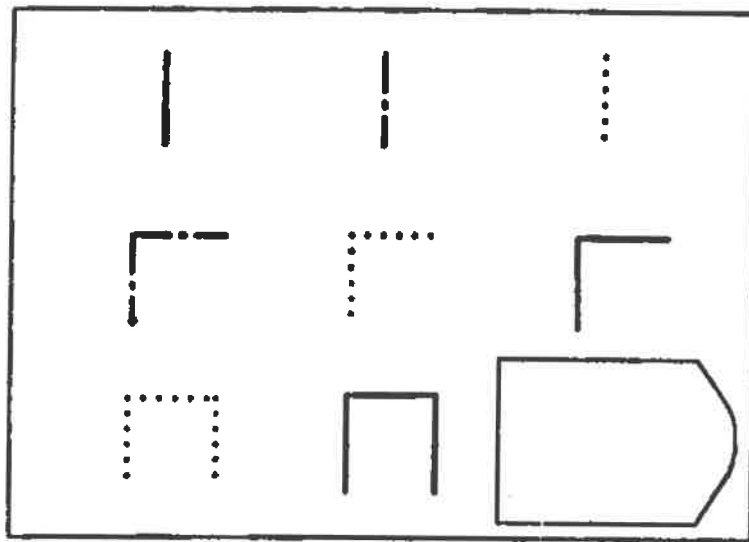
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Even though Varsity College is likely to do poorly compared to UKZN, you are still encouraged to try your best.

Appendix 2: Item example of Raven's Advanced Progressive Matrices



Appendix 3: Shipley Institute of Living Scale

Complete the following. Each dash (—) calls for either a number or a letter to be filled in. Every line is a separate item. Take the items in order, but don't spend too much time on any one.

start here

- (1) 1 2 3 4 5 —
- (2) white black short long down — —
- (3) AB BC CD D —
- (4) Z Y X W V U —
- (5) 1 2 3 2 1 2 3 4 3 2 3 4 5 4 3 4 5 6 — —
- (6) NE/SW SE/NW E/W N/—
- (7) escape scape cape — — —
- (8) oh ho rat tar mood — — — —
- (9) A Z B Y C X D —
- (10) tot tot bard drab 537 — — —
- (11) mist is wasp as pint in tone — —
- (12) 57326 73265 32657 26573 — — — — —
- (13) knit in spud up both to stay — —
- (14) Scotland landscape scapegoat — — — — —e
- (15) surgeon 1234567 snore 17635 rogue — — — — —
- (16) tam tan rib rid rat raw hip — — —
- (17) tar pitch throw saloon bar rod fee tip end plank — — — — — meals
- (18) 3124 82 73 154 46 13—
- (19) lag leg pen pin big bog rob — — —
- (20) two w four r one o three—

Appendix 4: Social Identity Inventory

Based on the description above, UKZN as a group have a good reputation with respect to Raven's Advanced Progressive Matrices

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, Varsity College as a group have a good reputation with respect to Raven's Advanced Progressive Matrices

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, Raven's Advanced Progressive Matrices is more suited to the skills of UKZN than Varsity College

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, Raven's Advanced Progressive Matrices is more suited to the skills of Varsity College than UKZN

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, UKZN students are likely to do better than Varsity College students on Raven's Advanced Progressive Matrices

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, more Varsity College students are likely to badly compared to UKZN students on Raven's Advanced Progressive Matrices

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, the best performing participant will probably be a UKZN student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Based on the description above, the worst performing participant will probably be a Varsity College student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I enjoyed doing the Raven's Advanced Progressive Matrices task very much

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

The Raven's Advanced Progressive Matrices task was fun to do

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I think I am pretty good at the Raven's Advanced Progressive Matrices

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I was very relaxed while doing the Raven's Advanced Progressive Matrices task

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I felt very nervous while doing the Raven's Advanced Progressive Matrices task

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I put a lot of effort into the Raven's Advanced Progressive Matrices task

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I *did not* try very hard to do well at the Raven's Advanced Progressive Matrices task

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

While doing the Raven's Advanced Progressive Matrices task, when I came to difficult problems I did my best to work it out.

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

While doing the Raven's Advanced Progressive Matrices task, when I came to a difficult problem I did not mind guessing.

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

A Varsity College student can easily become a UKZN student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

It would be difficult for a Varsity College student to adjust to being a UKZN student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

A Varsity College student would be successful as a UKZN student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

A Varsity College student would feel anxious about becoming a UKZN student

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

A Varsity College student would feel confident about moving to UKZN

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

It is difficult to move from Varsity College to UKZN

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Varsity College students would fit in well with UKZN students

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

It is important for me to excel in most things I do

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I worry when I feel like I might not succeed at a task

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Being average does not bother me

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Hard work is something I prefer to avoid

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Varsity College is united

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Varsity College students have similar values

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Varsity College students have a lot in common

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Most Varsity College students usually prefer doing similar things

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

UKZN is united

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

UKZN students have similar values

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

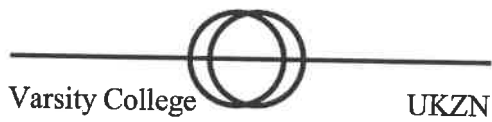
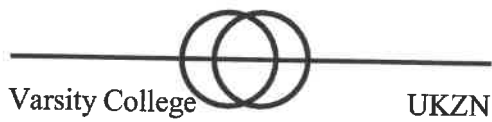
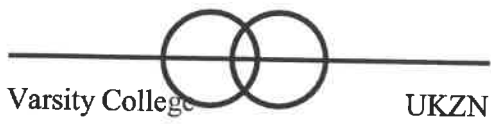
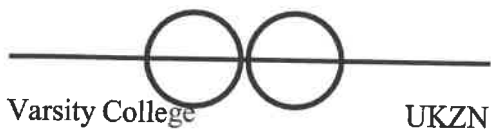
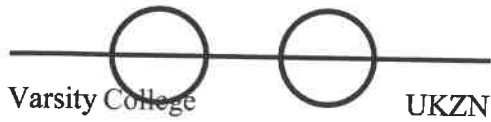
UKZN students have a lot in common

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Most UKZN students usually prefer doing similar things

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Choose the picture that best represents the current closeness between Varsity College and UKZN



There are important differences between Varsity College and UKZN

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

UKZN students are different from Varsity College students

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

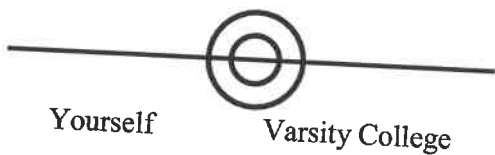
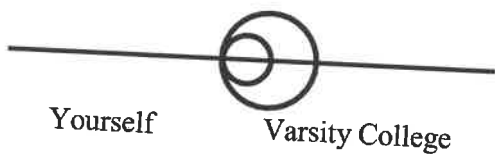
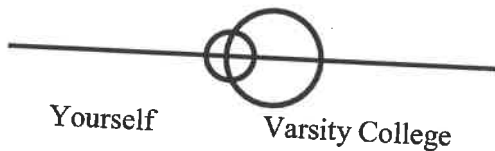
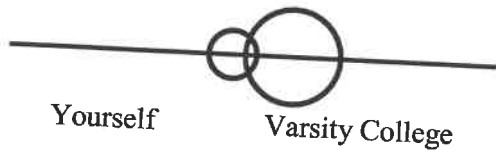
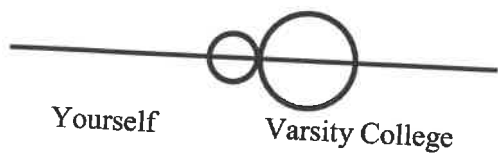
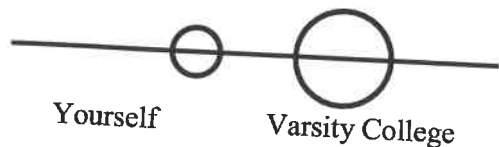
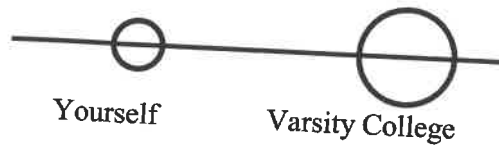
In general Varsity College students and UKZN students are very similar to each other

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Varsity College and UKZN students have a lot in common

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

Choose the picture that best represents your own closeness to Varsity College



Being a Varsity College student affects the way I am and how I think

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

It feels bad when people say bad things about Varsity College

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I am NOT proud to be a Varsity College student

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I prefer not to see myself as a Varsity College student

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I felt that I could be identified as an individual while I was doing the task

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

People who see these test results will be able to recognise me in other contexts

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I felt like I was personally in the spotlight while I was doing the task

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

People who saw this questionnaire would be able to trace me as an individual

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

My results will reflect more on my group [i.e. Varsity College] than on me as an individual

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I am being seen more as a group member [i.e. Varsity College] than as an individual

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I felt like my group [i.e. Varsity College] was in the spotlight while I was doing the task

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I felt as if I was being tested on behalf of my group

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

The difference between Varsity College and UKZN is justified and right.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

The difference between Varsity College and UKZN makes sense

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

The difference between Varsity College and UKZN is unfair.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

When people think UKZN is better than Varsity College they are not seeing things as they really are

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

Even if they try their best, Varsity College will not overtake UKZN

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

It's unlikely that UKZN will lose their good reputation

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

No matter what they do, Varsity College will never have as much status as UKZN

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

The current gap between Varsity College and UKZN will not change easily.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

The current gap between Varsity College and UKZN is just temporary.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I think the difference between Varsity College and UKZN will remain stable for the few next years.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I feel IRRITATED when I think about interacting with UKZN students

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I feel UPSET when I think about interacting with UKZN students

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

I feel ANGRY when I think about interacting with UKZN students

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree somewhat agree agree strongly agree
nor agree

There is cooperation between Varsity College and UKZN

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

UKZN is gaining resources at the expense of Varsity College

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

It will take me longer to find a job because of UKZN students in the job market.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

If UKZN students get too successful then Varsity College students will really struggle to succeed.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

UKZN students don't understand the way that Varsity College students view the world.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

UKZN students don't realize the true importance of Varsity College or core Varsity College students' activity

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

Most UKZN students will never understand what Varsity College students are like.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

The values that are important to Varsity College students are under threat, because of the influence of UKZN values.

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree
nor agree somewhat agree agree strongly agree

While I was doing Raven's Advanced Progressive Matrices I was not aware that I am a Varsity College student

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree nor agree somewhat agree agree strongly agree

While I was doing Raven's Advanced Progressive Matrices I felt very much like a Varsity College student

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree nor agree somewhat agree agree strongly agree

While I was doing Raven's Advanced Progressive Matrices I thought of myself as a Varsity College student

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree nor agree somewhat agree agree strongly agree

Previous academic performance:

What mark best describes your usual academic performance? _____

What were your six best matric symbols (eg. A, B, C, D, E, F etc.)? _____

What symbol was your matric aggregate (eg. A, B, C, D, E, F etc.)? _____

Think about an academic subject that's important to you. How high would your mark have to be before you began to feel PROUD of it? _____

Think about an academic subject that's important to you. How low would your mark have to be before you began to feel EMBARRASSED about it? _____

What mark best describes your usual academic performance? _____

I am always polite, even to people who are unpleasant

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree nor agree somewhat agree agree strongly agree

There have been occasions when I took advantage of someone

1 2 3 4 5 6 7
strongly disagree disagree somewhat disagree neither disagree nor agree somewhat agree agree strongly agree

I sometimes try to get even with people rather than forgive and forget

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

I sometimes feel resentful when I don't get my way

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

No matter who I'm talking to, I'm always a good listener

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

How do you think the typical UKZN student would have experienced Raven's Advanced Progressive Matrices in terms of DIFFICULTY?

1	2	3	4
very hard	hard	easy	very easy

How do you think the typical UKZN student would have experienced Raven's Advanced Progressive Matrices in terms of ENJOYMENT?

1	2	3	4
very unpleasant	unpleasant	enjoyable	very enjoyable

How do you think the typical UKZN student would have PERFORMED on Raven's Advanced Progressive Matrices?

1	2	3	4
very badly	badly	well	very well

How do you think the typical Varsity College student would have experienced Raven's Advanced Progressive Matrices in terms of DIFFICULTY?

1	2	3	4
very hard	hard	easy	very easy

How do you think the typical Varsity College student would have experienced Raven's Advanced Progressive Matrices in terms of ENJOYMENT?

1	2	3	4
very unpleasant	unpleasant	enjoyable	very enjoyable

How do you think the typical Varsity College student would have PERFORMED on Raven's Advanced Progressive Matrices?

1	2	3	4
very badly	badly	well	very well

Demographics

Sex

M	F
---	---

Race

Black	Coloured	Indian	White	Other
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Home Language

Afrikaans	English	IsiZulu	IsiXhosa	Other
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Appendix 5: Study Debriefing Sheet

Research Study Debriefing Sheet

The real aim of our programme of research is to explore the effect of stereotypes on task performance. It is now well known that members of groups who are negatively stereotyped in an area are likely to perform poorly on a relevant task if their group membership is made relevant - this is called stereotype threat. There is also an equivalent boost (although it is not as strong) for members of groups that are positively stereotyped in a domain.

When we told you that the research was comparing the performance of Varsity College and UKZN students, we were trying to make you aware of your group membership as a Varsity College student and to activate the associated stereotypes. Half of you were told that the task (Raven's Advanced Progressive Matrices) favoured Varsity College students (i.e. a positive stereotype was invoked) and the other half of you were told that the task favoured UKZN students (i.e. a negative stereotype was invoked). **In reality this stereotype is not really true (that is, there is no research indicating that either of these groups are advantaged regarding Raven's Advanced Progressive Matrices), although it corresponds with commonly held stereotypes about the two groups.**

Stereotype threat has been shown to influence the performance of women in math, black students in academics generally, students from economically disadvantaged backgrounds in university settings, white males in sports, and many other stereotyped groups in many other contexts. This means that many members of stereotyped groups are not achieving their full potential because of the negative consequences of stereotype threat.

We are investigating whether social-identity variables such as permeability (the extent to which people believe that they can easily move to the other group) influence the stereotype threat effect. Hence, half of you were told that it is easy to transfer from Varsity College to UKZN whilst the other half of you were told that transferring between institutions is difficult. **However, there is no such research suggesting that transferring between Varsity College and UKZN is either easy or difficult.**

If stereotype threat applies to you, the good news is that there are some simple solutions that have been shown to limit its negative effects:

- Be aware that anxiety in a testing or performance situation may be due to stereotype threat. At least one study has shown that awareness of the influence of stereotype threat can neutralise it.
- In a performance situation think about your membership of groups with positive stereotypes in the domain. For example, in this experiment thinking about yourself as a university student (instead of as a Varsity College student) may have shielded you from the negative stereotype. Always try to think of your best group membership while completing any particular activity.

Your participation in this study is much appreciated. Thank you!

Appendix 6: Sheet of Informed Consent

Informed Consent Form

Dear Participant

Thank you for volunteering for this study. Please remember that your participation is voluntary and that you may choose to leave at any time.

If you choose to continue, you will be asked to complete several tests and questionnaires regarding your academic literacy and your affiliation to your institution. Although some of the tests are difficult, they are not very stressful and you will be given a chance to ask questions after the study. Participation will take approximately 45 minutes.

Aside from the benefit of helping to advance social knowledge, you might also learn something about yourself and about psychological research. You will also be given R30 to compensate you for your time and effort and you will be entered into a lucky draw to win a mini-laptop.

The results of the tests you complete will be used for academic purposes e.g. academic studies, publications and conferences, and will need to be stored indefinitely by the investigator and will be accessed by other people working on the project. However, no personally identifiable details will be released as the results are entirely anonymous and confidential. If you have any queries or concerns about this research, I can be contacted on 076 817 5500 or at Karmini@live.co.za. Alternatively my research supervisor, Mike Quayle can be contacted on 0332605016.

Please note that your participation is entirely voluntary and you are not forced to participate in this study. You may withdraw from the study at any time, with no questions asked and with no penalties for discontinuation. However, if you start the study and then want to withdraw, the researcher will need to make sure that you understand everything that you have experienced up to that point and that you have not been harmed in any way by participating. I will appreciate your honesty and participation in this study.

Declaration

I..... (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Signature of Participant

Date

