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The Reliability and Validity of a Social Identity Inventory in the South African Tertiary
Education Context

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University of KwaZulu-Natal

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RELIABILITY AND VALIDITY OF A SOCIAL IDENTITY INVENTORY

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The following dissertation is submitted in partial fulfilment of the requirements for a Psychology Research Masters degree, in the School of Psychology, University of KwaZulu-Natal, Pietermaritzburg.

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Unless specifically indicated to the contrary, this dissertation is the result of my own work.

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This thesis is the culmination of much time and effort but most importantly it brings to an end a very dear and important phase of my life, my student identity. Although I will part ways with this identity I hope to continue my relationship with academia and my lecturers all through my life. Most especially my supervisor, Michael Quayle, who has been an ever constant presence assisting me from my very first steps into research at an undergraduate level. His relaxed teaching style and clear mentorship has informed my work as a student and will go on to inform my work as a researcher. I enjoyed the meetings, the ramblings, the clarity and the picnics!

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Abstract

Social Identity Theory's (SIT) explanations of psychological and group phenomena have been endorsed repeatedly through numerous laboratory experiments (to cite a few Tajfel, 1978; Tajfel, 1982; Turner, & Oakes, 1997; Oakes, Haslam, & Turner, 1994; Ellmers, Spears & Doosje, 2002; Hogg & Cooper, 2007). However many studies applying the framework include only a small subset of the key SIT constructs that form an integral part of the overall model (Abrams & Brown, 1978; Turner & Brown, 1978). Consequently, there are only a few measures of these socio-structural variables that are widely available internationally and this problem is more pronounced in the local South African context. This research study thus aimed to construct a reliable and valid measure of fundamental SIT constructs and pilot them on naturally occurring groups within the tertiary education context. The SIT constructs included in the scale were: in-group/out-group closeness; in-group/out-group identification; group permeability; stability; legitimacy; conflict; intergroup differentiation; and in-group/out-group homogeneity.

A sample of $n = 510$ university students were recruited for participation in one of two study conditions. In condition one participants' sex (male or female) was the salient social identity for intergroup comparison. In condition two participants' student identity (undergraduates or postgraduates) was made salient. These study conditions were chosen because the groups that were used were naturally occurring groups, to elaborate, the two groups that were compared in condition one had impermeable boundaries and the status hierarchy was illegitimate; whilst in condition two the two groups had permeable boundaries and legitimate categories for comparison.

A reliability analysis was then conducted in order to examine the reliability of the scale as well as to improve the scales by weeding out poor items. A confirmatory factor analysis was then performed in order to confirm the independence and statistical coherence / logic of the constructs included in the inventory. Finally four hypotheses based on SIT literature were tested to partially test the construct validity for a subset of the subscales.

These procedures resulted in subscales that loaded independently and predictably on coherent factors and had an acceptable to good reliability as research instruments, but not for psychometric or testing purposes. Finally the hypothesis tests confirmed that, in accordance with theoretical predictions from SIT there were significant relationships between: (1) in-group identification and group status; (2) permeability, status and in-group identification; (3) in-group identification and in-group homogeneity. However, a fourth and more complex hypothesis, namely that low status group members in groups with low legitimacy would express more conflict than members of low status groups with high legitimacy, was not confirmed. The successful hypothesis tests indicate that the in-group/out-group identification, status, permeability, and in-group/out-group homogeneity sub-scales were able to correctly replicate the theoretical predictions that were drawn from Social Identity Theory. These findings are useful indicators of the construct and criterion validity of these subscales.

Based on these results, one can conclude that the Social Identity Inventory has a reasonable reliability and there are some indications of validity. However additional research is needed to further explore the reliability and validity of the scale using a more representative sample of the general population and with the recommended final versions of the scales.

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Chapter one: Introduction

Social Identity Theory (SIT) is arguably one of the most important theoretical models within social psychology (Reicher, 2004). SIT's contribution to the study of social identity and powerful explanations of psychological and group phenomena has been useful for understanding a wide variety of social-psychological phenomena (to cite a few Ellemers, Spears & Doosje, 2002; Gundlach, Zivnuska & Stoner, 2006; Harzing & Feely, 2008; Hogg & Cooper, 2007; Laditka, Laditka, Houck & Olatosi, 2011; Oakes, Haslam & Turner, 1994; Transue, 2007). However most applied studies have offered what Reicher (2004) would call a "reductionistic misreading" (p. 921) that focuses on the more popular features of SIT (such as In-group identification) but fails to acknowledge or focus on the less well known features of social identity such as stability, permeability and legitimacy (Spears, Oakes, Ellemers & Haslam, 1997; Oakes, Haslam & Turner, 1994; Mummendey, Klink, Mielke, Wenzel & Blanz, 1999; Hornsey, Spears, Cremers & Hogg, 2003; Ellemers, Spears & Doosje, 1997; Ellemers, Spears & Doosje, 1999; Ellemers, N., Spears, R., & Doosje, 2002; Ellemers, Spears & Doosje, 2002; Ellemers, Wilke & Van Knippenberg, 1993; Haslam, Salvatore, Kessler & Reicher, 2008; Hogg & Abrams, 1990). Mummendey, Klink, Mielke, Wenzel and Blanz (1999) also argue that most "studies have only included parts of the SIT model (e.g. concentrated on one aspect of socio-structural characteristics)" (p.262). However, researchers wishing to include the full spectrum of social identity variables in quantitative studies are hampered by the shortage of internationally and locally validated scales and measures for most of the key SIT constructs (Spears, Oakes, Ellemers & Haslam, 1997; ; Wetherell, 1996). This research study aims to source and validate an inventory of reliable and valid measures of fundamental SIT constructs and to test these scale items using naturally occurring groups within the tertiary education context.

Chapter Two: Literature Review

This chapter presents a review of Social Identity Theory as well as a discussion of the contributions SIT has made to the study of social identity. With a specific focus on the measurement issues which have proved to be problematic for Social Identity Theory in relation to aims of this research study.

2.1 A summary of Social Identity Theory (SIT)

Social identity theory (SIT) is able to provide a theoretically sound, socially rooted notion of identity, SIT postulates that “any society which contains power, status, prestige and *social* group differentials (and they all do), places each of us in a number of social categories which become an important part of our *self*-definition.” (Tajfel, 1977, cited in Turner & Oakes, 1997, p.357). Category membership within any social context is thus inevitable, however membership to one category comes at the exclusion of other categories; and not all categories are equal hence, individuals bound by their category membership then seek to establish themselves within the most powerful, high status and prestigious group identity (Antaki, 1996; Abrams & Hogg, 2004).

Social identity theory “proposes that people strive to achieve or maintain a positive social identity thus boosting their self-esteem and that this positive social identity is derived largely from favourable comparisons that can be made between the in-group and relevant out-groups. In the event of an unsatisfactory identity people may seek to leave their group or find ways of achieving more positive distinctiveness for it” (Brown, 2000, p. 747). Tajfel (1978), explains that an individual’s group membership can either increase or decrease depending on that individuals degree, or lack, of cognizance of their group membership respectively.. Therefore, as a direct result of a group relevant situation, group identification could be enhanced or lessened, and inactive group classifications could become salient as well as significant to the individual (Tajfel, 1978; Barreto & Ellemers, 2000; Brown & Hewstone, 2005).

Building on this foundation one can then argue that individuals seek to establish the most positive social identity for themselves using, as well as limited by, the social resources and strategies available to them (Antaki, 1996; Barreto & Ellemers, 2000; Brown & Hewstone, 2005). This compulsion toward attaining the most desirable social category is driven by the possible rewards that a high status or positive social identity can provide an individual; nevertheless what is viewed as the most desirable social identity is a matter of perception as well as dependant on an individual's present social identity in comparison to others. The concept of social identity will now be further explored using and informed by the above understanding of SIT.

2.2 Social identity

The self can be understood as “a varying, reflexive representation of the perceiver which is inherently fluid and flexible because it is a *comparative, relational judgement*” (Turner & Oakes, 1997, p.366). Social Identity Theory emphasises the role of social life in identity formation and ascertains that one can define oneself using or drawing on the groups to which one belongs, as these groups provide one with a “collective self-concept” (Hogg & Cooper, 2007, p.340). Using this understanding of social identity as a basis for the development of one's social identity (or identities), one can argue that the management of that social identity is thus influenced by social relationships, social situations and one's social category/ies. Social categorisations systemise as well as provide a system for self-reference, therefore simultaneously creating and defining individuals' identity in society (Tajfel, 1978; Bornstein, Crum, Wittenbraker, Harring, Insko & Thibaut, 1983). Using this reference system individuals are able to comparatively and relationally compare themselves to other groups, and through this process, they are actively defining their social identity/ies (Tajfel, 1978; Burisch, 1984; Hogg & Cooper, 2007).

2.2.1 Social Groups

For the purposes of this study Hogg and Cooper's (2007) cognitive definition of a social group will be used, whereby “a group exists psychologically when two or more people define and evaluate themselves in terms of the defining and often prescriptive properties of a common self-

inclusive category. However, it should be recognised that group life also involves social interaction, interdependent goals, and so forth” (p.335). Brown (2000) takes this definition further by stating a group is acknowledged as such when two or more individuals identify as members of the group and the group is also recognised by another or other individuals as a group (Brewer, 1979; Hogg & Cooper, 2007).

Nevertheless, groups do not need to be in frequent contact in order to be defined as a group, as members only need to be aware of their relevant group membership/category in order for the group to exist (Diehl, 1990; Brewer, 2001). Furthermore groups exist in relation to other groups as well as differentiated from other groups (Billig & Tajfel, 1973). For example at any university one has undergraduates and postgraduates, each of these groups have distinct properties that characterize their group members; therefore to belong to the undergraduate group one must be enrolled in an undergraduate degree or diploma and in order to belong to the postgraduate group one must hold an undergraduate degree and be pursuing a postgraduate degree. Not all undergraduates and postgraduates will meet each other but all members of these respective groups are aware of their group membership within the university society and in relation to each other. Additionally others outside of these groups recognise and accept these groups as valid social groups.

2.2.2 Positive social identity

Abrams and Brown (1989) refer to the multiple identities and categories that an individual can hold as “self-images or self –categorisations” and argue that “different self-categorisations may be salient at different times; these can be at various levels of generality, ranging from highly idiosyncratic aspects of self such as personality, intelligence and personal experiences (“personal identity”) to perceptions of self as a member of a broad social category such as gender (“social identity”). Intergroup behaviour often is based on individuals' awareness of having a shared sense of identification with a social category” (p.311). Depending on the situation and which category or identity is made salient an individual would either be motivated

to maintain or elevate their personal or group identity in order to achieve the best possible status (Tajfel, 1970; Anastasi & Urbina, 1997; Abrams, Marques, Bown & Henson, 2000).

From their minimal group studies Tajfel and Turner (1979) were able to identify three stages that drive the psychological processes behind attaining a positive social identity namely,

1. *Social Categorisation and stereotyping*: This refers to the awareness of social group categories that are readily found in society or specific social situations, to list a few, race, age, socio-economic status, or marital status (Doosje, Branscombe, Spears & Manstead, 1998). These categories evoke cognitive judgements (created) by individuals of themselves and others that are based on these categories or groups. These judgements are comparative evaluations of these groups, in other words they focus on the, similarity or difference between groups or individuals (Anastasi & Urbina, 1997; Abrams, Marques, Bown & Henson, 2000). An example of this can be seen, in a group based on sex (men and women) there is a long social history of women not having the same human rights and socio-economic advantages as men, therefore when this group category is made salient one would compare members of these groups based on the current social situation (women earn less money in the workplace than men) and possibly drawing on the history attached to the groups and conclude that women are the lower status group based on the advantages that the one group has over the other based on and using the value system within one's society or community (Credit today, 2007).

2. *Social Identification*: This refers to the awareness of social categorisations and cognitive judgements that serve to create social identities based on a shared (socially informed) value system. This is done through the awareness of categorisations. When one identifies as a member of a group one is given a social identity by oneself as well as others (out-group members as well as in-group members) (Tajfel, 1982; Anastasi & Urbina, 1997; Abrams, Marques, Bown & Henson, 2000). Using (again) the example of men and women, one cannot belong to both the male and female group – one is either a male or a female and most often one's physical or biological appearance categorises one as a member of one of these groups.

One is then related to as a 'woman' or a 'man' and drawing on the social history as well as current social trends attributed to this group one is given a social identity, by oneself as well as other in-group and out-group members.

3. *Social Comparison:* This final psychological feature focuses on the self-esteem and positive social identity of the individual. Tajfel and Turner (1979) argue that one's self-esteem is tied to one's social group/s and therefore in order to attain a positive self-esteem a group member should or will define one's group in a positive light. However, because social groups are compared to each other, often, in competition for resources, power or status; the need for a positive social identity may drive in-group members to accentuate the differences between the groups in order to gain a positive social identity and perhaps attain the resources and status that come with this positive identity (Tajfel, 1982; Anastasi & Urbina, 1997; Abrams, Marques, Bown & Henson, 2000). Therefore when one is identified as a female group member in a society where sexism is pervasive, and as one cannot easily leave this group because it is impermeable and biologically based, then that individual may evoke 'cognitive alternatives' through social creativity. This can be done by actively distancing oneself from one's group through accentuating one's unique and individual differences from the female group, for example stating that one has masculine hobbies or traits. In some cases a female in-group member may even enforce negative stereotypes toward other female group members in order to further distance herself from the in-group (Tajfel, 1982; Anastasi & Urbina, 1997; Abrams, Marques, Bown & Henson, 2000). However if the society is matriarchal as opposed to patriarchal a female group member may closely identify as a female in-group member and discriminate against male out-group members, even accentuating the differences between the male out-group and female in-group.

Due to their importance to SIT these psychological stages and processes will now be further explored. The drive for a positive identity will be an overarching theme throughout the discussion of social categorisation, and social comparison. Finally the methods used to attain or maintain a positive social identity will be discussed.

2.3 Social categorisation and status

2.3.1 The process of social categorisation

In everyday society individuals are readily and constantly divided into a “web of groups of high and low status, this division into groups often implies a competitive relation between the groups. In other words intergroup categorisations might bring into play what seems to the individual to be the appropriate form of intergroup behaviour” (Tajfel, 1978, p.100). Tajfel (1978) explains that these categorisations often provide the individual with the essential conditions needed for intergroup discrimination to occur . When two groups are compared one often has to choose whether to differentiate oneself and others on an individual level or on a group level, as being either an in-group member or out-group member (Tajfel, 1978).

Brown (2000) argues that when two or more groups are compared to each other there is an underlying or overt need to appraise one’s own group positively (in comparison to the out-group) and this need results in the differentiation of groups from each other . There are three key factors that influence group / intergroup differentiation in realistic or existing social situations, specifically:

First, one must internalise one’s group membership as part of one’s self-concept or identity. One should ideally be positively biased toward and identify with the relevant in-group; the in-group should form part of one’s self-concept. Members of the out-group should also define or identify one as a member of the in-group as this would assist with one’s self-definition as an in-group member (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

Second, the social context or circumstances should foster intergroup comparisons that draw on group inequalities and hence facilitate comparisons between groups. Not all comparisons necessarily allow for significant assessments; and intergroup comparisons may vary depending on the context, the groups being compared or the salient group attributes (Tajfel & Turner, 1979; Turner et. al., 1987).

Third, the social groups being compared must be perceived by group members as an appropriate or pertinent comparison group. Brown (2000) adds that “similarity, proximity, and situational salience are among the variables that determine out-group comparability, and pressures toward in-group distinctiveness should increase as a function of this comparability. It is important to state at this point that in many social situations comparability reaches a much wider range than simply conceived ‘similarity’ between groups” (p. 86). Although the mere awareness of a group is enough to ensure that a comparison is made and hence in-group discrimination is activated (Tajfel & Turner, 1979).

Intergroup categorisations are important because they serve to facilitate differentiation as well as in-group bias (Tajfel, 1982). In-group bias refers to the tendency for members of the in-group to identify with or believe that the in-group is better or superior in comparison to other social groups and group differentiation refers to the in-group’s readiness to discriminate against the other or out-group members (Tajfel, 1982; Brown, 2000). Group discrimination can manifest in many ways behaviourally, such as in-group favouritism even when there is no overt necessity for such behaviour (Anastasi & Urbina, 1997; Brown, 2000). In some cases intergroup discrimination has been witnessed, even at the cost to the in-group’s overall (group) benefit; this behaviour has been found to be pervasive as intergroup discrimination often results in the in-group feeling good about themselves and their group regardless of rewards or benefits (Brown, 2000; Mummendey, Klink, Mielke, Wenzel & Blanz, 1999; Spears, Oakes, Haslam & Turner, 1994; Spears, Oakes, Ellemers & Haslam, 1997; Tajfel, 1982).

2.3.2 The role of status in social comparisons

Status differences/inequalities are not always, or necessarily due to a scarcity in resources but rather the perception that these resources are unequally distributed; this perception is often the outcome of intergroup comparisons (Tajfel & Turner, 1979; Farr, 1996). According to SIT contact between a low and high status group should serve to intensify the low status group’s resentment toward the high status group (Tajfel, 1978). This occurs as generally only

comparatively similar groups (groups of similar status) readily partake in intergroup comparisons (Adorno, Fenkel-Brunswik, Levinson & Stanford, 1950; Tajfel, 1978). Drawing on this premise one can argue that if status differences are made salient so that comparisons between high and low status groups are induced then the perceived similarity between these groups is reduced. Thus, status systems serve to reduce intergroup conflict by limiting the number of significant comparisons that groups can make; for that reason when intergroup comparisons are made between high and low status groups (regardless of status differences but dependant on the legitimacy of that status difference and the degree to which the groups are permeable), social action and change may occur, such as strikes or revolutions (Adorno, Fenkel-Brunswik, Levinson & Stanford, 1950; Tajfel, 1978).

A low group status generally implies that the group's status position in comparison to a range of other social groups is also quite low, hence the group has little ability to contribute to a positive social identity for the individual (Brown, 2000). Therefore in order to attain a positive identity whilst one is a member of a low status group, one often reacts either at an individual level or intergroup level in order to manage one's identity. Members of high status groups also engage in identity management in order to maintain their high status. The various reactions and processes that drive social identity management will now be explored.

2.4 Cognitive and motivational processes: Intergroup Strategies

2.4.1 Identity management

Collens (1996) eloquently puts forth three theoretical reasons for the drive to achieve a high or positive social status or identity, namely, positive self-evaluation, enhancement and improvement. The active process whereby an individual seeks out the best possible identity in relation to their group membership and within the constraints of the social and situational demands is called identity management (Turner & Oakes, 1997; Doosje & Ellemers, 1997; Brown, 2000). Tajfel and Turner (1979) highlighted several possible strategies that group members could use to re-establish a positive social identity. These social identity management

strategies can be linked to two fundamental and distinct actions, namely, exit and voice. The 'exit' strategy proposes that individuals will seek to either leave their in-group or differentiate themselves from the in-group (Anastasi & Urbina, 1997; Mummendey, Klink, Mielke, Wenzel, & Blanz, 1999). The 'voice' strategy occurs when in-group members remain in the in-group and use various social strategies available to them that may improve the in-group's status (Mummendey et. al. 1999).

Mummedy et. al. (1999) explain that "identity management strategies may either resemble: (1) individual activities to change only the individual position but may leave the in-group's relative position unchanged (individual mobility) or they may represent, (2) collective activities [that serve to] improve one's own position by changing the intergroup situation itself (social mobility or social competition)" (p.261). However in order to engage in any of these identity management strategies one must first be aware of and understand the social structure, culture, societal norms and values of the society (Hogg & Abrams, 1990; Mummendey et.al. 1999). For example in order to evoke the exit strategy of individual mobility, one has to understand and accept that in-group and out-group boundaries as permeable and hence adjustable (Mummendey, Klink, Mielke, Wenzel, & Blanz, 1999).

Thus when leaving the in-group does not seem feasible group members will then use collective identity management strategies. If intergroup relations are seen as permanent or fixed and fair (legitimate) then collective identity management strategies are more likely to be evoked than social change (Hogg & Abrams, 1990; Mummendey et.al.1999). Therefore in order to use these strategies in-group members must believe, consider or perceive that intergroup relations can be changed (Hogg & Abrams, 1990; Mummendey et.al 1999).

The literature differentiates between simple (straight forward) or subtle techniques (Doosje & Ellemers, 1997; Brown, 2000).

Simple or straight forward identity management strategies

“Ascribing positive characteristics to the In-group is perhaps the most straightforward strategy to achieve positive group distinctiveness” (Doosje & Ellemers, 1997, p. 258). Brown (2000) best explains this strategy as occurring when a lower status in-group member/s make positively biased comparisons between their in-group and the higher status out-group, using socially accepted and desirable values and traits from within the society in which the comparison is made. For example, if the in-group is classified as unable to perform high level mathematic tasks then highlighting that your group is instinctive rather than logical (essentially evoking a socially valued trait that the in-group holds) could serve to improve the perceived status of one’s in-group.

Subtle identity management strategies

Subtle techniques are often implemented because “members of low status groups in real life are often constrained by the consensual social reality of the status hierarchy, especially when these status differences are stable and secure” (Doosje & Ellemers, 1997, p. 259). Therefore ascribing a positive status to ones group cannot always be achieved overtly or explicitly because the low status group is too strongly constrained by the status hierarchy and too low in status to convincingly argue for a higher status. Hence low status group members often attempt to ascribe a positive status to the in-group using more subtle techniques. However one should note that high status group members may also engage in these strategies and techniques in reaction to low status in-group members’ attempts to improve their lower status, thus even a secure group identity can necessitate the use of these techniques when the status of that identity is questioned (Tajfel, 1982).

”Emphasising the importance of positive in-group dimensions” (Doosje & Ellemers, 1997, p. 259). This tactic involves, highlighting traits or activities that the in-group are perceived to be good or excel at and downplaying or glossing over any perceived in-group weaknesses. For example, an out-group member may argue that undergraduates are too inexperienced within an

academic setting, but an undergraduate (in-group member) could argue that their in-groups lack of academic experience or knowledge is a motivating or driving force behind their pursuit of knowledge and rather than this being a weakness it is strength as they are willing to learn and adapt instead of remaining inexperienced.

Comparing the in-group and out-group on a new dimension” (Doosje & Ellemers, 1997, p. 259). This strategy is also referred to as social originality, an example of this strategy could be when a low status group is perceived to be inexperienced academically (such as, undergraduates); this group would be more likely to emphasise their life experience or involvement in other more socially valued areas as opposed to validating academic ranking as being important to their in-group or self identity. The in-group members could achieve this by mentioning that they have travelled extensively, or that they have a great deal of work experience and are merely going through the formality of attaining a university degree in order to supplement their existing experience and knowledge.

Changing the value connotation of dimensions attributed to the in-group and “lowering the aspiration level of the group, and to seek out other lower status groups to compare one’s own group with.” (Doosje & Ellemers, 1997, p. 259). This subtle identity management strategy that can be used by high and low status group members and involves changing or positively phrasing the characteristics or descriptions attributed to the in-group (Doosje, & Ellemers, 1997). Peabody (1968) explainss that although group members might agree on the traits given to the in-group and out-group, they may differ on the negative or positive status linked to these traits (Doosje & Ellemers, 1997). This strategy entails the use of more socially positive descriptions of your group, for example a female in-group members may describe the in-group as being in touch with their emotions instead of stating that in-group members are often described as moody, this allows the in-group members to acknowledge the unavoidable negative trait or status but in so doing allows in-group members to re-phrase this negative trait in a much more positive light and hence improve the in-groups perceived status. Another way in which this strategy is implemented could be when female in-group members choose to compare themselves with a lower status group rather than endorse the comparison with the high

status group (males) and hence improve the relative status of the in-group. For example if a female group member is told that men earn more money in the workplace than women then the female in-group member may choose to highlight or argue that in comparison to the generations of women before her, who did not have the right to vote or attend university, women in the present day and age are currently in the best position that they have ever been in.

“Accentuate intragroup differences when the image of their group is threatened” (Doosje & Ellemers, 1997, p. 260). Until the 1980’s stereotypes were seen as group traits (unitary and homogenous group traits) Haslam, Oakes, Turner, and McGarthy (1996) argue “intragroup variability may differ as a function of social identity concerns... members of groups with a negative stereotype may stress the heterogeneity of the in-group and possibly the out-group”(as cited in, Doosje & Ellemers, 1997, p. 260). This final strategy could be used as a personal or group identity management strategy. As it allows the individual to still maintain group membership but stress their unique strengths or it could allow for group dis-identification and the creation of a positive personal status.

However if collective strategies are not successful in changing the status of the in-group then the in-group may engage in *direct social competition* with the out group, and they might try to invert the status or situations of the in-group and out-group on pertinent issues through enforcing changes in the social structure via social competition (Tajfel, 1986). If the social competition focuses on the distribution of resources then it is possible that this strategy will increase conflict and antagonism between the two groups being compared (Tajfel, 1986).

The role of Social Identity Theory (SIT) in understanding and predicting identity management strategies

One can draw on Social Identity Theory to predict in-group and out-group behaviour, Tajfel (1982) argues that in-group behaviour towards out-groups is often similar across a range of socio-economic conditions and societies. This similarity is due to the socialisation of individuals, a process that begins from birth whereby the norms and values of an individual’s

community, group/s, and society are taught to the individual and internalised (Tajfel, 1982; Giddens, 2001). Thus “within SIT it is further assumed that in a particular social and historical context beliefs about specific characteristics of the intergroup situation do influence the choice of strategies” (Mummendey et.al. 1999, p.261) (also see Tajfel, 1970; Tajfel & Turner, 1979; Hogg & Abrams, 1988).

Ellemer's (1993) study “demonstrated that members of an artificially-created group that performed relatively poorly on a group performance task, were inclined to address this threat in terms of social identity theory either in individual or collective terms, depending on socio-structural factors (such as permeability of group boundaries, and stability of group status)” (p. 261). Bettencourt, Dorr, Charlton and Hume (2001) point out that the strategies evoked or drawn on by low status groups are often informed by the socio-structural context. Social identity hence is able to focus on the various effects that these variables have on social behaviour and identity (Tajfel & Turner, 1979).

2.4.2 Socio-structural constructs

Bettencourt, Dorr, Charlton and Hume (2001) argue that socio-structural variables are fundamental influence the interactions between groups and their status differences. Each socio-structural variable is understood as a single, dichotomous variable however Tajfel (1970) argues that the majority of interaction “between human groups, large and small, reflect an intricate interdependence of social and psychological causation.” (p. 97). Therefore although the socio-structural variables within Social Identity Theory (SIT) can be understood as separate, dichotomous entities one must also be aware of the dialectical and interdependent nature of these variables (Tajfel, 1970; Hornsey & Hogg, 2000).

Furthermore, Billig and Tajfel (1973) argues that “the ‘real life’ interactions of socially relevant variables are much too complex to permit straightforward predictions which could be simply related to status differentials ... the status of the group must be considered together with its ‘secure’ or ‘insecure’ social identity, the perceived comparability with another group, the

perceived relevance of the comparisons and -last but not least- the perceived legitimacy and stability of the intergroup situation. The very existence of attempts to achieve intergroup differentiation depends upon these various interactions” (p.13). Thus depending on the perceived importance (value) of these socio-structural variables the strategies used to attain or preserve integrity or achieve a positive status will be varied. As each strategy has its own limitations and advantages the strategies that group members evoke are usually within the group members’ socio-structural limitations (Hogg & Abrams, 1990; Hornsey & Hogg, 2000; Tajfel, Billig, Bundy & Flament, 1971).

Variables that are of fundamental importance to SIT as a whole are in-group/out-group closeness, permeability, stability, legitimacy, conflict, differentiation, in-group / out-group homogeneity and in-group/ out-group identification will now be discussed. Due to the amount of empirical evidence which verifies that these various SIT variables are regularly used by members of differing groups (Ellemers, 1993; Mummendey et.al., 1999) each of these variables will now be briefly described in relation to their relevance and role within Social Identity Theory (SIT).

2.4.2.1 Group Differentiation

Group differentiation occurs when an in-group member projects their identity as well as the in-groups identity as being uniform, cohesive and legitimate; and negatively stereotypes the out-group (Tajfel, 1982). Commins and Lockwood’s (1979) insightfully state that, “the social group is seen to function as a provider of positive social identity for its members through comparing itself, and distinguishing itself, from other comparison groups along salient dimensions which have a clear value differential” (cited in Tajfel, 1982, p.24). Therefore, group differentiation and conflict are relational in nature and can be amplified due to status inequalities (even minor or slight differences) or resource based comparisons between groups (Gagnon & Bourhis, 1996; Oakes, Turner & Haslam, 1994; Tajfel, 1982). Strong group differentiation is indicative of a strong social identity; thus one can predict that intergroup competition (perhaps unrelated to the goals or relationships between the groups) may occur (Oakes, Turner & Haslam, 1994; Tajfel, 1982). From Tajfel and Turner’s (1979) minimal group experiments it was found that that even

minimal groups (groups decided based on minimal criteria such as a coin toss) can evoke in-group bias and group differentiation. The low status in-group members are often hostile toward the high status out-group, however if the basis of comparison and inequality is perceived as legitimate then the low status group may (in some situations) express or endorse the superiority of the high status group (Oakes, Turner & Haslam, 1991; Mummendey et. al.,1999).

2.4.2.2 Homogeneity (in-group or out-group homogeneity)

Homogeneity refers to the degree of perceived similarity between two or more groups or individuals (Brown, 2000). Homogeneity is closely linked to group status and in-group identification. This is seen when group members are highly identified with their in-group and their in-group status is threatened or low, the in-group members will stress the homogeneity of their group, and even self-stereotype in order to stress the in-groups collective identity (Hogg & Abrams,1988). The converse is true of in-group members who do not highly identify with the in-group or view their in-group as not highly homogenous or similar to their personal identity; and they will stress the in-groups heterogeneity and seek to distinguish themselves as different from the in-group, when the in-groups status is threatened or low (Ellemers, Spears & Doosje, 2002). Therefore one can argue that homogeneity is closely linked to group status and group identification.

2.4.3.3 Legitimacy

Legitimacy can be defined as the valid, lawfully fair or socially accepted conventions that determine the rights and / or access to resources between the various social groups within society (Tajfel, 1982;Hornsey, Spears, Cremers & Hogg, 2003). The perceived fairness and legal legitimacy of the in-group and out-group status differences influences the perceived social mobility of the low status groups (Brown, 2000, p. 759). Ellemers, Wilke, and Van Knippenberg (1993) found that when status comparisons between groups are perceived by the groups to be legitimate and the groups are impermeable than the low status group is less likely to have strong in-group identification.

2.4.3.4 Stability

Stability refers to the perceived permanence or constancy of the various well known and generally accepted positions, hierarchies and status differences within societies and between groups (Tajfel, 1982). If these status differences are perceived to be highly stable then these differences are perceived by group members to be resistant to change; however if these status differences are viewed as unstable, changing or impermanent then group members may perceive the status difference as being easily broken (Tajfel, 1982). The more an in-group member perceives their in-group status as being stable and legitimate the less likely they are to believe in the possibility of group mobility; however if the in-groups status is seen as unstable the greater the chances that the individual will attempt social mobility, and members who wish to leave the group may then act more as individuals rather than as part of the in-group (Tajfel, 1982).

2.4.3.5 Permeability

Permeability is understood as the ease or difficulty with which a group member can either leave their current group or become a member of another group (Tajfel, 1982). The identity/group management strategies implemented by individuals are often varied and multiple but are limited or restricted by the group's permeability, the more permeable a group the easier it becomes to use strategies such as dis-identifying with the group, whereas if the group is impermeable (for example, sex) then it is not possible to dis-identify and one would need to use numerous other identity management strategies in order to maintain or attain a positive individual or in-group identity (Ellemers, 1993; Doosje, & Ellemers, 1997).

2.4.3.6 Conflict

The concept of conflict focuses on the disagreement over, or perceived unfairness of the distribution of resources between groups, such as a positive or high group status, as well as resources such as money or food (Tajfel, 1982). Conflict and group differentiation can either be expressed aggressively (fights) or peacefully via negotiations (Tajfel, 1982).

2.4.3.7 *Group identification (in-group and out-group identification)*

Group identification pertains to the extent with which an individual personally classifies, categorises or views themselves as part of their in-group. Group closeness is correlated to judgement and norms relative to ones comparative group status (Reicher, 2004). “Insofar as different identities are associated with different beliefs, norms, and values, we would expect radically different behaviours as a function of how we categorize ourselves and others in any given context” (Turner, Oakes, Haslam, & McGarty, 1994; cited in Reicher, 2004, p.934). Individuals who are highly identified with their group tend to manage their identity in terms of their in-group identity rather than their personal identity and place a great deal of focus on the homogeneity of the group. Low in-group identifiers tend to dissociate themselves and seek individual identity management strategies, as well as tend to emphasise heterogeneity within the group; and only when positively stereotyped are low identifiers motivated to maintain a group identity (Doosje, & Ellemers, 1997, Ellemers, 1993). Studies have found that strategies such as individual mobility tend to require one to have a low degree of in-group identification with one’s in-group (Sherif, Taub & Hovland, 1958). However, collective strategies (such as social creativity) are drawn on when group members highly identify with the in-group, especially so if the status inequality is seen as unstable (Mummendey et.al., 1999). If the status difference is seen as illegitimate and unstable in-group identification is strengthened, however legitimacy alone is a poor predictor of group strategies evoked (Mummendey et.al., 1999). If individuals closely identify with the in-group they tend to self-stereotype and in-group as well as out-group homogeneity is high as in-group members see themselves (as well as out-group members) as groups rather than individuals with differing personal characteristics (Turner, 1991). Results from Ellemers, Spears, and Doosje’s (1997) study found that high in-group identification among members of a legitimately low status group ensured that in-group members tended to accentuate intragroup heterogeneity and express group satisfaction as opposed to members who had low levels of in-group identification (Ellemers, Van Knippenberg, de Vries, & Wilke, 1988)

2.5 Rationale of the study

Social Identity Theory (SIT) is a complex and complicated theory that has a pervasive and far reaching impact on research into social behaviour. However the question remains, how does one measure or assess social identity? Currently there are very few validated scale measures for many of the fundamental SIT variables; additionally the few scales that do exist many have not been validated within the South African context. Therefore there is a need for a locally developed and validated measure of key SIT variables. The next section will focus on the ways in which this study aims to address this issue through a description of the study aims and rationale.

2.5.1 Socio-Structural Variables Related to SIT

The need for the incorporation of a range of socio-structural variables in scale measures of social identity within the South African context

In the many years after its inception there has been an increasing popularity of SIT as a theoretical framework; however there have recently been criticisms that most applications of the SIT model have stripped the theory of its complexity (Reicher, 2004). It is therefore necessary to develop a reliable and valid inventory of scales that will allow a relatively complete set of social identity constructs to be easily assessed in a given study to “avoid reductionist misreadings of the theory that would explain human social action simply by reference to psychological processes, without examining how the interplay of processes depends on the cultural and structural settings in which they occur” (Reicher, 2004, p.921).

Currently there are few validated and reliable scale measures within SIT, and these measures often exclude many of the key SIT socio-structural variables that are important to the SIT model. Of importance to the present study is Turner's (1999) criticism “that research has failed to recognize the importance of socio-structural variables for group members' responses to salient intergroup comparisons (i.e., status comparisons). Turner (1999) eschewed the tendency of researchers to focus simply on the motive for positive social identity without an appreciation of the dynamic interplay between this motive and beliefs about social stratification. He clarified

that people's intergroup attitudes are a function of the need for positive social identity within the context of particular socio-structural variables" (as cited in Bettencourt, Dorr, Charlton & Hume, 2001, p.523).

Mummedy et. al. (1999) provides the following summary of the research conducted with the aims of measuring SIT variables over the last 20 years since the inception of SIT in 1979:

"Up to now several authors have presented more or less complex overviews of functional relations among beliefs about intergroup relations and identity management strategies (Hogg & Abrams, 1988; R. Brown, 1986; R. J. Brown, 1988). Based on theoretical frameworks developed therein, experimental research has been conducted by Ellemers et. al. (see Ellemers, Van Knippenberg, de Vries & Wilke, 1988; Ellemers, Wilke & van Knippenberg, 1993; Ellemers, 1993, for an overview) as well as by Wright, Taylor and Moghaddam (1990) and Lalonde and Silverman (1994). Most of the studies involved low-status groups and dealt with the impact of permeability on In-group identification and preference for individual mobility versus social competition. Only very few attempts to include all three socio-structural factors (i.e. stability, legitimacy and permeability) as independent variables as can be found (e.g. Ellemers, Wilke & van Knippenberg, 1993). (p.261)"

This summary highlights the need for further research that is more inclusive of the various socio-structural variables that play a vital role within SIT (Ellemers, N., Spears, R., & Doosje, 2002; Haslam, Salvatore, Kessler & Riecher, 2008; Hogg & Abrams, 1990). The development of a set of scale measures of key social identity variables should therefore aim to incorporate and use a broad range of key SIT variables in order to adequately "uncover the circumstances under which people will act as group members or pursue their individual interests when the image of their group is threatened [or made salient]" (Doosje & Ellemers, 1997, p. 258). Several studies have used direct measures of in-group bias to assess intergroup attitudes, and some studies have used them exclusively but few of them have attempted to directly measure

the underlying socio-structural constructs themselves (Brown, 1978; Sachdev & Bourhis, 1987, 1991; Turner & Brown, 1978; Vaughan, 1978). Consequently, there are currently very few measures widely available that are inclusive of many of the key variables of SIT internationally and this problem is more pronounced in the local South African context. From the body of scales that do exist very few are validated within the South African context therefore there is a need to develop validated and locally relevant scales for the key SIT constructs in SA.

2.6 Scale development

Scale based methods of research are popular due to the fact that these measures “are relatively efficient compared to other methods, can be administered to large numbers of people with little cost, are easily scored, and often are the most direct methods for gathering information about people’s thoughts, feelings, behaviour, attitudes, and personality” (Simms, 2008, p.414). But this does not mean that these methods do not require intense effort and time, as one needs to ensure that one creates or uses a scale that is both reliable and valid and allows for generalisations to be made based on the findings from said scale (Simms, 2008). This subsection will briefly detail fundamental issues of concern within scale measurement and development, particularly reliability and validity.

2.6.1 Reliability

Reliability refers to whether or not a test or scale consistently renders a similar measure time after time and what the test/scale is measuring is ascertained through determining the test/scales validity. Reliability is an important aspect of scale research as a scale cannot be valid if it is not reliable (Loewenthal, 2002). Nunnally and Bernstein (1994) define reliability as “the proportion of variance attributable to the true score of the latent variable” (cited in DeVellis, 2003, p.27). Scale reliability is an essential and an important feature of any scale as it provides a measure of a scales internal consistency or the homogeneity of the items in the scale (DeVellis, 2003). This is important in psychological research when one attempts to measure theoretical constructs in a quantifiable or precise way; as unreliable measures can hinder the

researchers ability to adequately apply or predict human behaviour in a useful or meaningful way (Loewenthal, 2002). Building on this understanding of reliability some of the different forms of reliability will now be discussed.

2.6.1.1 Internal consistency and inter-item total correlations

Loewenthal (2002) argues that when one thinks “about reliability, think consistency” (p.5). So although researchers cannot directly observe the link between the scale items and the underlying theoretical construct that the scale seeks to measure; by conducting a reliability analysis the researcher is able to determine whether or not the scale items are strongly correlated to each other (DeVellis, 2003). This is important or significant because, as DeVellis (2003) argues “if items have a strong relationship to the latent variable they will have a strong relationship with each other” (p.28).

Chronbach’s coefficient alpha is strongly equated as a measure of a scales internal consistency or the quantity of total variation/difference in a scale measure, in other words, “error variance = $1 - \alpha$ or $\alpha = 1 - \text{error variance}$ ” (DeVellis, 2003, p.29). Therefore if the reliability analysis of this scale demonstrates that there are high correlations between the items, it is strongly indicative of the statistical probability that these variables are correctly or accurately measuring the same underlying theoretical construct (DeVellis, 2003).

2.6.1.2 Test-retest reliability

This form of reliability assessment involves giving or administering the same test to the same sample two different intervals and if the test is reliable than the scores from the two different occasions should be strongly correlated (Loewenthal, 2002; DeVellis, 2003). The scores may not be identical due to participants becoming test-wise through practice or if the test is administered too soon after the first test then participants may try to mimic previous answers (DeVellis, 2003; Finchilescu, 2005). However Loewenthal (2002) cautions that “this form of reliability assessment is not much use if you are assessing transitory states of mind that are easily and rapidly changed (such as, mood and many beliefs, attitudes and intentions” (p,10).

2.6.1.3 *Split-half reliability*

Using this form of reliability, a researcher administers the entire test once and then randomly splits the test into two halves; the scores for each of the halves are calculated and then correlated and the stronger the correlation between the scores the more reliable the test is (DeVellis, 2003; Durrheim, 2007b).

2.6.1.4 *Alternate forms reliability*

Using this form of reliability requires that the researcher construct two versions of the same test where each item on one test is matched to the other test; the two tests are then given to the same sample of participants (Loewenthal, 2002; Finchilescu, 2005). The tests are either given to the participants one after the other (in differing order, so some participants get version two first and some get version one second and vice versa) or the tests are completed by the same participants at different points in time (Finchilescu, 2005). The scores from the two tests are then compared and more strongly correlated the two tests are the more reliable the test; This form of reliability assessments helps with the problem of test wise participants (that often occurs within test – retest reliability assessments), but it is a time consuming and expensive method of reliability assessment as one has to design two different but interrelated tests and administer each of these tests (Finchilescu, 2005).

2.6.1.5 *Reliability criteria*

Reliability coefficients are the criteria with which one can judge reliability; stricter requirements are required for ability tests than for attitude or personality scales (Finchilescu, 2005). If one aims to use the test to compare different groups then generally a reliability of ≤ 0.5 is unacceptable, ≥ 0.5 is poor, ≥ 0.6 is sufficient, ≥ 0.70 acceptable, ≥ 0.8 is good and an alpha of ≥ 0.9 is excellent (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994; Finchilescu , 2005). Although a Cronbach's Alpha coefficient of 0.9 or 0.8 is desirable, Loewenthal (2002) argues that if "there is good evidence for validity, there are good theoretical and/or practical reasons for the scale and, the scale is short (less than 10 items)" then one can consider using a lower coefficient of around 0.6 (p.60). In Psychological research due

to the nature of the underlying constructs a goal of .7 is often seen as reasonable (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994). The social identity inventory tested within this study has been optimised for length, with the trade-off that a cut-off of alpha of $\geq .65$ has been used which may be unacceptable to some researchers. However, if a measure can be shown to be valid then the primary concern with lower Cronbach's Alpha is that it reduces power. Furthermore a high/good scale internal consistency does not signify that a scale is unidimensional, in order to determine the dimensionality of a scale one must conduct a factor analysis (DeVellis, 2003).

In order to better understand and interpret Cronbach's alpha the classical test theory assumptions that underlie all classical tests will now be discussed, specifically, those of normality and homogeneity of items as well as the tau equivalent model (Tavakol & Dennick, 2011; Nunnally & Bernstein, 1994).

Due to the assumptions of normality and homogeneity alpha will increase if the number of items in a scale are increased, regardless of their usefulness or contribution to the overall scale because alpha is not only dependant on the inter-item correlations of items but also the homogeneity of items (Tavakol & Dennick, 2011; Nunnally & Bernstein, 1994). This means that if one constructed a very long scale that measures two or more constructs the alpha of the entire scale is likely to be high but meaningless (Tavakol & Dennick, 2011; Nunnally & Bernstein, 1994). Therefore if alpha is too high this may mean that there is a high degree of redundant items in the scale (Tavakol & Dennick, 2011; Nunnally & Bernstein, 1994). Tavakol and Dennick (2011) explain these shortcomings of alpha in relation to the 'tau equivalent model' which assumes that each test item measures the same latent trait on the same scale. Therefore, if multiple factors/traits underlie the items on a scale, as revealed by Factor Analysis, this assumption is violated and alpha underestimates the reliability of the test (Tavakol & Dennick, 2011). If the number of test items is too small it will also violate the assumption of tau-equivalence and will underestimate reliability (Tavakol & Dennick, 2011). When test items meet the assumptions of the tau-equivalent model, alpha approaches a better estimate of reliability (Tavakol & Dennick, 2011). In practice, Cronbach's alpha is a lower-

bound estimate of reliability because heterogeneous test items would violate the assumptions of the tau-equivalent model” (Tavakol & Dennick, 2011, p.54). In relation to and following on this discussion the factors that researchers should seek to control as they have an effect on the reliability of the scale will now be discussed

The factors are:

1. The number of items in the scale: although one can increase alpha merely by increasing the numbers of items in a scale (assuming inter-item-correlation is roughly constant), this is not advisable as it does not improve the validity of the scale and participants tend to get annoyed or unmotivated if items are repeated or the scale is too long (Loewenthal, 2002).
2. The score variability of the sample: a greater the variability within the sample the greater the heterogeneity of sample and hence one can conclude that the sample is representative of the wider population (Durrheim, 2002b).
3. Extraneous variables: such as ambiguous items, misleading items, double negatives, and untested measures. If one controls for these variables then this can limit the measurement error of the scale and ensure that the reported score is close to the true score of the scale (Durrheim, 2002a).

2.6.2 Validity

One can define validity as a test or scale that measures what aims to measure; specifically, “validity is concerned with what the test score actually measures” (Loewenthal, 2002, p.16). These definitions point to the fundamental importance of validity with regard to scale construction therefore, some of the key types of validity as well as issues concerning validity (that relate directly to the research study) will now be discussed.

2.6.2.1 Construct / Substantive validity

Cronbach and Meehl (1955) “argued that establishing the validity of measures of psychological constructs is challenging because there are no clear, observable criteria to serve as gold standards for the constructs we wish to measure” (as cited in Simms, 2008, p.416). The consequence is that construct validation can only be achieved when the constructs being measured are entrenched in a theoretical network of predicted relations among hypothetical constructs and observable criteria (Simms, 2008). Therefore construct (substantive) validity requires that a thorough review of the relevant literature be conducted in order to better conceptualise the various constructs under inquiry (Simms, 2008).

2.6.2.2 Content and Face Validity

Loewenthal (2002) defines content and face validity as being present “when the items are about what you are measuring, and face validity is present when the items appear to be about what you are measuring (p.16)”. Loewenthal (2002) puts forth the following arguments related to content and face validity; some researchers feel that content and face validity might sway the answers of the research participants as they will see a pattern forming, other researchers argue that in studies where deception is used content and face validity may reveal the true aims of the research study and finally it can be argued that content and face validity does not guarantee the other forms of validity and reliability.

2.6.2.3 Concurrent validity

Concurrent validity is the degree to which the items relate simultaneously to other measures of the underlying construct (Loewenthal, 2002). Correlations between existing or old scales and the current scales are a good indicator of concurrent validity; however Loewenthal (2002) warns that one can be criticised for testing a redundant scale if one's scale is similar to existing scales therefore one must argue for one's scale by showing how the new scale is cheaper to administer, easier to understand, better incorporates the latest theory and is an overall improvement in comparison to other tests or scales.

2.6.2.4 Predictive Validity

This form of validity occurs when the test being administered is able to predict future performance or action based on the participants' current performance on the test (Loewenthal, 2002).

2.6.2.5 Criterion validity

Loewenthal (2002) defines criterion validity as being “present when measures on the test differ as predicted according to some criterion” for example members of different social groups may respond differently on the same scale (p.17). Durrheim (2002b) further defines criterion validity as referring “to how well the scale or test anticipates a criterion behaviour or outcome, either at the present time (concurrent validity) or in the future (predictive validity)” (p.217).

2.6.2.6 Construct validity

Construct validity is achieved when one determines that the scale constructs and items are in fact congruent with the theory underpinning that construct as well as “its position with respect to other similar and dissimilar constructs – what Cronbach and Meehl (1955) termed the nomological net” (Simms, 2008, 419).

Construct validity can be determined through conducting correlations with the other scale measures (Kaplan & Saccuzzo, 2005). External validity is essential in order to ensure that a measure is valid overall as Simms (2008) eloquently explains, external validity involves an:

“assessment of several related aspects of construct validity: (i) convergent and discriminant validity, and (ii) concurrent and predictive validity (known collectively as criterion-related validity). *Convergent validity* is the extent to which a measure correlates with other indicators of the same construct, whereas *discriminant validity* is the extent to which a measure does not correlate with indicators of other constructs that are theoretically or empirically distinct. *Concurrent validity* involves relating a measure to

criteria assessed at the same time as the measure itself, whereas *predictive validity* involves associations with criteria that are assessed at some point in the future. Rather than thinking of them as independent types of validity, it is useful to consider them as different aspects of the same validity evidence” (p.428).

Now that scale development issues such as reliability and validity have been discussed the aims of the study in relation to these topics will now be discussed.

2.7 Key research study aims

The core aim of this project is to assess whether (or not) the SIT variables that have been collated from international scales; and piloted in the South African tertiary education context, are able to create a reliable or valid scale measure of SIT socio-structural variables within this context. This research study accordingly aims to partially validate and determine the reliability of a Social Identity Inventory in the South African tertiary education context. The development of such a scale would not only contribute toward the existing body of knowledge around SIT it would also allow for the contextual and quantitative exploration of this psychological phenomenon. Therefore the broader aims of this research study focus on the utility of having a reasonably robust, reliable and partially validated set of SIT measures for the South African tertiary education context and for further research within this context.

2.7.1 Additional aims based on socio-structural variables

The following section explores the predictions and the relationships between SIT variables that can be used for construct validation within this research study. The extent to which the scale results match the predictions outlined below also allows for a partial test of the predictive validity of the scale; as well as an assessment of the concurrent validity of the scale.

All of the socio-structural constructs are contextually sensitive and although they can be viewed as independent they are also highly inter-related, for example, groups that have low homogeneity are also likely to have lower differentiation; and groups with high intergroup conflict are also likely to have reduced permeability. As Tajfel (1970) argues “these dichotomies have value as analytical tools but they need not be taken too seriously;” as the majority of interaction “between human groups, large and small, reflect an intricate interdependence of social and psychological causation.” (p. 97). Therefore although the socio-structural variables within Social Identity Theory (SIT) can be understood as separate, independent constructs one must also be aware of the dialectical and interdependent nature of these variables (Tajfel, 1970).

2.7.1.1 Social Identity meta-theory: How socio-structural constructs are predicted to interact

Ellemers, Van Knippenberg, De Vries, and Wilke (1988) found that “(1) members of high status groups show more in-group identification than members of low status groups, (2) members of low status groups with permeable boundaries identify less with their group members of low status groups with impermeable boundaries and (3) in low status groups in-group identification decreases as group members have a higher individual ability.” (p. 497). From this we can predict that group status will be related to the constructs permeability and in-group identification. For example one prediction could be that individuals with a high group status will be more likely to identify with their group than individuals with a low group status. However, if an individual is a highly identified member of a group that places them in a self-threatening situation rather than dis-identifying the individual will accept the status of the group and embrace their group membership (Ellemers, 1993; Doosje, & Ellemers, 1997).

However when a group’s status is high, stable and legitimate and group boundaries are not completely impermeable, “changing the out-group comparator to a group nearer to the in-group in status would be more likely if leaving the group was psychologically or physically difficult and other more competitive strategies would occur if intergroup relations became destabilised or delegitimized” (Brown, 2000, p. 759). Based on this one can predict that there may be

greater conflict between low status, impermeable groups, as well as high status groups with an illegitimate status.

Therefore **hypothesis one** is: Members of high status groups will express greater in-group identification than members of low status groups

This hypothesis was informed by the following SIT theory: If group members have a low group commitment and are faced with a group threat they tend to seek individual identities apart from the group; if group members are highly identified with their group and the group status is threatened members of the group will stress the homogeneity of their group, self-stereotype in order to stress the groups collective identity (ibid). Therefore, people who strongly identify with their group would manage their group identity collectively (Ellemers, Van Knippenberg & Wilke, 1993). Furthermore, individuals who are highly identified with their group tend to manage their identity in terms of their group identity and place a lot of focus on the homogeneity of the group. So “the more important a group membership is to a person’s social identity, the more prototypical members should perceive themselves to be” (Doosje & Ellemers, 1997, p. 265). Using this one can predict that individuals who strongly identify with their group are less likely to highlight any heterogeneity within their group; this may be the case even when they are members of a low status group. However the converse is true of low identifiers, as low group identifying people tend to dissociate themselves and seek individual identity management strategies, as well as tend to emphasise heterogeneity within the group; and only when positively stereotyped are low identifiers motivated to maintain a group identity (Doosje & Ellemers, 1997; Ellemers, 1993).

From the above **hypothesis two** is: Members of low status groups with permeable boundaries will identify less with their in-group than group members of low status groups with impermeable boundaries.

And **hypothesis three** is: Group members who strongly identify with their in-group are more likely to accentuate in-group homogeneity, than group members who do not strongly identify with their in-group.

A low group status implies that the groups status position in comparison to other social groups is also quite low, hence the group has little ability to contribute to a positive social identity for the individual (Brown, 2000). There are a variety of reactions to a negative or poor social identity both at the level of the self and at a group level; however it is difficult to predict these reactions on the basis of status inequality alone (Ashforth & Mael, 1989; Anastasi & Urbina, 1997; Brown, 2000). For example if a low status group holds positive in-group attitudes and is confronted with an unfair or illegitimate status inequality this will often lead to revolutionary action for social, political and economic change (Fiske, Cuddy, Glick, Xu, 2002; Tajfel, 1978). But if a low status group does not hold positive in-group attitudes and is permeable then members of this group may attempt individual mobility, whereby members of the group seek to leave the group or dissociate themselves from the group (Brown, 2000).

Tajfel (1978) also cautions that it does not mean that low levels of status inequality translate into, or lead to low levels of conflict, conflict may exist due to a lack of social mobility or impermeability. As Brown (2000) states “studies using real groups as well as those using artificial groups have shown that status stability (Turner, 1978; Turner & Brown, 1978), status legitimacy (e.g., Bettencourt & Bartholow, 1998; Vaughan, 1978), and group permeability (e.g., Ellemers, Van Knippenberg, & Wilke, 1990) critically influence differences in in-group bias among high- and low-status groups.” (as cited in Brown, 2000, p.523).

From the above the final hypothesis can be derived, specifically, **Hypothesis four**: Female group members in condition one (aka low status impermeable groups with an illegitimate high status) will have greater levels of conflict than Undergraduate group members in condition two (aka low status group members with permeable boundaries and legitimate status differences).

2.8 Summary

Within this chapter the need for a valid and reliable scale measure was explored and discussed. The contribution that Social Identity Theory has made to the study of social identity and intergroup relations was discussed as well as an overview of key SIT socio-structural variables such as permeability, stability, conflict, legitimacy, in-group/out-group homogeneity and in-group/out-group identification; and the interplay of these constructs in reaction to unequal status situations. The current measurement issues that have arisen within Social Identity Theory were then highlighted and explored in relation to the aims of this research study as well as the contribution that this research study hopes to make within this field. The following chapter will now explore the methodological process behind scale development and the process that was undertaken by the researcher in order to attain the aims of this research study.

Chapter Three: Methodology

3.1 Introduction

The following chapter will highlight and explain the methodological aspects of this research study, such as, the study design, the sample, the sampling techniques implemented, the data collection process, the method of analysis of the data, and finally the ethical concerns and considerations related to the research study.

3.2 Theoretical Perspective

The research method for the study falls within the quantitative paradigm. As mentioned earlier the central aim of this study was to assess whether or not the Social Identity Inventory (SIT) scale (that the researchers have designed) is able to serve as a reliable and valid scale measure of key variables in SIT within the South African Tertiary Education Context. This objective was best achieved using a quantitative tool, sampling strategy and method of data analysis. This paradigm would also permit the researcher to draw tangible inferences and generalisable comparisons between the different groups of participants (Durrheim, 2002a; Loewenthal, 2002).

3.3 Academic Context and background

This study aimed to test and validate social identity measures and was developed as part of a broader research programme that sought to apply social identity theory to the phenomenon of stereotype threat (cf. Steele, 1997). The items that were included in the current scale were collated by Quayle (2009; 2011) and refined in 2008 and 2009. Measures with an adequate to good alpha were included as well as measures with strong face and criterion validity (DeVellis, 2003). The measures were worded using simple language that was deemed appropriate for second-language applications. The item pool was reviewed by external experts as recommended by DeVellis (2003). The pilot studies were used to validate the relevancy (face and content validity) and reliability of the items included in the scales (DeVellis, 2003). The results from these pilot studies as well as the final scale items for this study will now be described.

3.4 Instrumentation: Measures and Scale Development

The measurement format for the questionnaire is a seven point Likert-type scale. Likert-type scales are a popular attitudinal measure in research and this format was used in these studies as Likert-type scales have equal intervals/values of measurement, are easy to construct and items can be scale responses or graphical, and due to their popularity most participants are familiar with the scale and can easily complete the scale (Burisch, 1984; Dawes, 2007; Maranell, 2007). Seven responses were selected for the scale as the literature suggests that this is a reasonably strong number of response sets (Burisch, 1984; Dawes, 2007; Maranell, 2007). Likert-type scales are also easy to score and analyse as the intervals can be converted into numbers to render an overall score (Maranell, 2007). The study scale is comprised of 42 questions or items that measure eight SIT constructs as well as a social desirability sub-scale. Each of these sub-scales will now be discussed in greater detail.

3.4.1 Group Differentiation

Briefly, Group differentiation transpires when an in-group member projects their identity as well as the groups identity as being uniform, cohesive and legitimate (Tajfel, 1982).

Three of the five items in the scale that relate to Group Differentiation were extracted from Jackson's (2002) 13 item self categorisation scale ($\alpha = 0.84$) (Quayle, 2009). These items were selected in order to assess the degree to which the in-group and out-group are perceived to be distinctive and separate categories (Quayle, 2009).

The items are as follows:

- 1- "[In-group members] are different to [out-group members]";**
- 2- "[In-group members] have a number of things in common with each other";**
- 3- "People in [the out-group] are a lot alike in many respects."**

The fourth item was a graphical measure taken from Shubert and Otten (2002). In this validated measure the two groups (namely, the in-group and out-group) are graphically represented via

two circles on a straight line (see Figure 1), these circles begin on opposite sides of the straight line and as one moves down the diagram the circles successively move closer to each other on the straight line. This item renders a measure of the extent to which the out-group and in-group see themselves as either close or distant from each other and is validated in detail by Shubert and Otten (2002).

***Choose the picture that best represents the current closeness between [In-group] and [outgroup]**

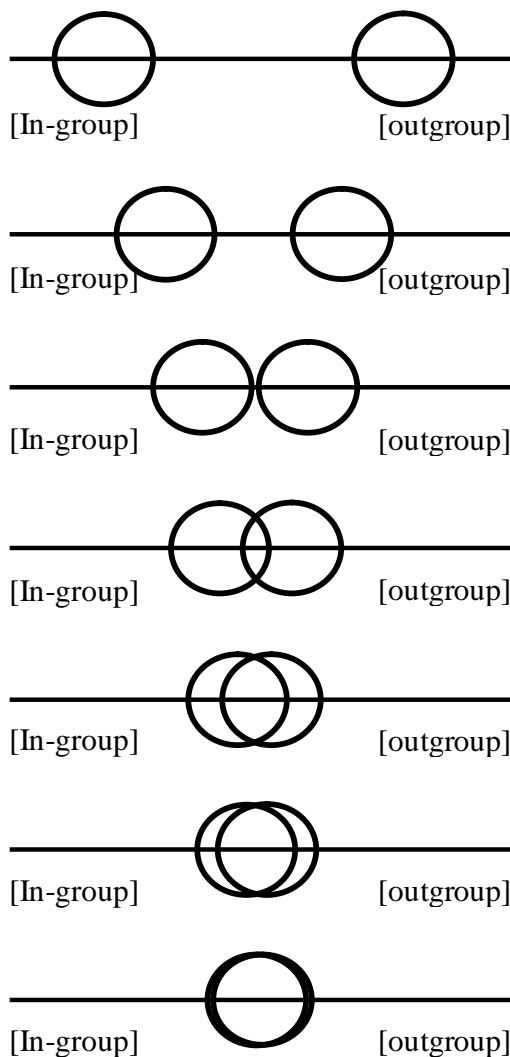


Figure 1: Graphical measure of Group Differentiation from Shubert and Otten (2002)

These items were piloted by Quayle (2009) in two studies in 2008. From the pilot study and study two a factor analysis on the items showed that the items loaded in accordance with the theoretical pattern predicted by the items (Quayle, 2009). The items that related to the coherence of the in-group and out-group loaded on the first factor and the items that related to group closeness (first item and graphical item) loaded on the second factor (Table 1 and 2) (Quayle, 2009). But in study two there was a slightly different item loading, items one, two and three loaded on the first factor (group coherence) and the graphical item loaded on the second factor (group closeness).

Table 1: Factor analysis (principle components; two factors extracted; varimax rotation) of Group Differentiation items in the pilot and studies one and two (Quayle, 2009)

| | | Pilot | Study 1 | Study 2 |
|--------------------------|--------|-------------|-------------|-------------|
| Factor 1 (coherence) | Item 1 | .513 | .843 | .016 |
| | Item 2 | .918 | .853 | .754 |
| | Item 3 | .928 | .831 | .803 |
| | Item 4 | -.022 | .117 | .014 |
| Factor 2 (difference) | Item 1 | .668 | .075 | .623 |
| | Item 2 | .130 | .063 | .253 |
| | Item 3 | .082 | .173 | -.199 |
| | Item 4 | .937 | .991 | .785 |

Table 2: Inter-item correlation for the group differentiation measure in study 2 (Quayle 2009)

| | 1 | 2 | 3 | 4 |
|---------------------|----|------|-------|-------|
| Item 1 (Separation) | -- | .036 | .010 | .076 |
| Item 2 (Coherence) | | -- | .210* | .109 |
| Item 3 (Coherence) | | | -- | -.050 |
| Item 4 (Separation) | | | | -- |

*. Correlation is significant at the 0.05 level (2-tailed)

Revision of group differentiation scale

Due to the poor performance in study two the items were revised and re-piloted on postgraduate psychology students in 2008. From this pilot the “reliability for the revised items scale was good ($\alpha = .820$)” (Quayle, 2009, p.12). Further analysis revealed that items included in the study scale (2010) had an acceptable reliability ($\alpha = .790$) as well as an equilibrium between normal and reverse-coded items (Quayle, 2009) see Table 3.

Table 3: Items assessing group differentiation (in addition to the graphical measure) (Quayle, 2009)

| Item | Source |
|--|---|
| 1. There are important differences between the [In-group] and [Out-group] | Jackson (2002) |
| 2. [Out-group] members are different from [In-group] members. | Jackson (2002) |
| 3. *In general [in group members and Out-group members] are very similar to each other | Quayle (2009). Reverse phrased item |
| 4. *In group members and Out-group members] have a lot in common | Adapted from Jackson (2002). Reverse phrased item |

3.4.2 In-group and out-group homogeneity

Homogeneity refers to the degree of perceived similarity either, between groups or between individuals belonging to the same group (Tajfel, 1982). Nine items phrased to assess in-group homogeneity were piloted in 2009 (Quayle 2009). From the original nine items, four items were included in the piloted scale; the items are outlined in Table 4. These items had an acceptable reliability ($\alpha = .771$). These items were then repeated and edited with out-group labels in order to assess both dimensions (in-group and out-group homogeneity) and although these items reasonably cover the construct it does not include reverse-phrased items (Quayle, 2009).

Table 4: Items assessing in-group and out-group homogeneity (Quayle, 2009)

| Item | Source group | In group or out-group |
|---|----------------------------|-----------------------|
| 1. The [in-group] is united. | Jackson (2002) homogeneity | In-group |
| 2. [In-group members] have similar values | Quayle (2009) homogeneity | In-group |
| 3. [In-group members] have a lot in common | Quayle (2009) homogeneity | In-group |
| 4. Most [In-group members] usually prefer doing similar things | Quayle (2009) homogeneity | In group |
| 5. The [Out-group] is united. | Jackson (2002) homogeneity | Out-group |
| 6. [Out-group members] have similar values | Quayle (2009) homogeneity | Out-group |
| 7. [Out-group members] have a lot in common | Quayle (2009) homogeneity | Out-group |
| 8. Most [Out-group members] usually prefer doing similar things | Quayle (2009) homogeneity | Out-group |

3.4.3 In-group identification

Group identification specifically pertains to the degree with which an individual identifies personally with their group (Tajfel, 1982). This factor assesses the extent to which participants (both in-group and out-group) classify, categorise and/or align themselves with their respective groups (Quayle, 2009).

Sourcing items

Although there was a substantial pool of in-group identification items, many of these items were worded at a level that was too complex for second language speakers. This was of concern

as the majority of South Africans speak English as a second language; however, there were five items that were relatively plainly worded in English (Table 5).

Table 5: In-group identification Items and their sources (sourced from Quayle, 2009)

| | Item | Source |
|---|---|--|
| 1 | My group is an important part of who I am | Ellemers, Kortekaas and Ouwerkerk (1999), adapted with respect to Crisp & Beck (2005) (ie. "reflection" in Ellemers et al. changed to "part") |
| 2 | I feel strong ties with [In-group] as a group | Doosje, Ellemers, and Spears (1995) |
| 3 | Being an [in group member] always affects the way I am and how I think. | Costarelli (2007) |
| 4 | Overall, my membership of [this group] has very little to do with how I feel about myself | Luhtanen and Crocker (1992) |
| 5 | If someone says something bad about [my In-group] it is like they are saying something bad about me | Adapted from Verkuyten and Nekuee (1999) |

Sourcing items

The scale was piloted and tested in two further studies 2008 by Quayle (2009). The items had an overall adequate reliability (Table 6) in the pilot and both studies ($\alpha = .853$; .627 and .747 respectively) and an acceptable reliability when the data was combined ($\alpha = .769$).

Table 6: Change in alpha for the in group identification scale when items four and five are omitted (Quayle, 2009)

| | Full scale alpha | Alpha for items 1,2,3 and 6 | Difference |
|------------------|------------------|-----------------------------|------------|
| Pilot (N=23) | .853 | .887 | .034 |
| Study 1 (N=60) | .627 | .770 | .143 |
| Study 2 (N=102) | .747 | .731 | -.016 |
| Combined (N=185) | .769 | .768 | -.001 |

As items four and five had a low reliability they were excluded from further studies, items one, two and three were re-piloted along with five additional or slightly reworded items using a sample of 36 postgraduate psychology students (Quayle, 2009). The eight items proved to have an acceptable alpha ($\alpha = .779$), by dropping items five and seven, when the scale comprised of items one, two, three, four, six and eight it had a good alpha ($\alpha = .814$). Therefore the final

study scale included items one, two, three, four, six and the graphical closeness scale from Schubert and Otten (2002) (Table 7). The Schubert and Otten (2002) measure was similar to the group differentiation scale item (depicted in figure 1 page 37). This item was included in order to render a measure of the extent to which the individual sees themselves as either close or distant from their in-group and is validated in detail by Shubert and Otten (2002).

Table 7: Additional in-group identification items (Quayle, 2009)

| Item | Source |
|---|-----------------------------------|
| 1. My group is an important part of who I am as a person | Rephrased from version one |
| 2. I feel strong ties with [In-group] as a group | Identical to version one |
| 3. Being an [in group member] affects the way I am and how I think | Identical to version one |
| 4. It feels bad when people say bad things about [my In-group] | Rephrased from version one |
| 5. I would feel bad to criticize [my group] with people who are not connected to [In-group] | Adapted from (Brown et al., 1986) |
| 6. I am NOT proud to be a [in group member] | New item (Quayle, 2009) |
| 7. I am very different to other [in group members] | New item (Quayle, 2009) |
| 8. I prefer not to see myself as [an in group member] | New item (Quayle, 2009) |

3.4.4 Legitimacy

Legitimacy is defined as the extent to which the status difference between two groups is perceived as valid, lawfully fair or socially accepted (Tajfel, 1982).

Sourcing items

Through searching the social identity literature Quayle (2009) sourced eight validated items (Table 8, items 1 -8). The reliability for the legitimacy items was acceptable in the 2008 pilot study and study one and two respectively (.824; .697; .749; and .757, in

Table 8) (Quayle, 2009). However when a confirmatory factor analysis (principle components; two factors extracted; varimax rotation) was conducted item one loaded more-or-less independently on factor one whilst the other items loaded on another factor, as seen in Table 9, (Quayle, 2009). Due to this finding as well as the fact that the study scale, for the 2010 study does not require a stereotype legitimacy manipulation items one, two, three, four and seven were dropped. After the items were dropped the scale then had an acceptable Cronbach's alpha of .795 (see table 10) but there are no reverse-coded items in the scale (Quayle, 2009).

Table 8: Items in the legitimacy scale and their sources (Quayle, 2009)

| Item | Source |
|---|--|
| 1 I am familiar with this stereotype | (Quayle, 2009) |
| 2 I believe that this stereotype has a lot of truth to it | (Quayle, 2009) |
| 3 [The Out-group] deserve their reputation. | (Quayle, 2009) |
| 4 [The In-group] deserve their reputation. | (Quayle, 2009) |
| 5 The difference between [In-group] and [Out-group] is justified and right. | Item from Weber, Mummendey and Waldzus (2002) combined with item from Costarelli, (2007) |
| 6 The difference between [In-group] and [Out-group] is reasonable | Item from Weber, Mummendey and Waldzus (2002) combined with item from Costarelli, (2007) |
| 7 The difference between [In-group] and [Out-group] is the way it should be. | Terry and O'Brien (2001) |
| 8 The difference between [In-group] and [Out-group] is unfair. | Adapted from Jost and Burgess (2000) and Hornsey, Spears, Cremers and Hogg (2003). Reverse phrasing |
| 9 *When people think the [high status group] is better than the [low status group] they are not seeing things as they really are | Quayle, 2009 – reverse phrasing |

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Table 9: item analysis for the legitimacy scale (Quayle, 2009)

| | | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|---|-------------|-------|------|------|------|------|------|------|------|
| Pilot Study: (N=23) Sample: psychology honours students | M | 3.864 | 5.96 | 4.00 | 3.70 | 3.65 | 3.17 | 4.22 | 2.43 | 3.78 |
| | SD | 1.365 | 1.15 | 1.54 | 1.22 | 1.30 | 1.27 | 1.59 | 1.12 | 1.62 |
| | Average Inter- Item or Item- Total Correlation | .379 | .198 | .497 | .794 | .657 | .667 | .692 | .599 | .366 |
| | Coefficient Alpha or alpha if item dropped | .824 | .843 | .812 | .773 | .789 | .788 | .781 | .799 | .834 |
| | Reliability Gain if Dropped | | 0.019 | | | | | | | |
| | | | | | | | | | | |
| Study 1 (2008): (N=60) Sample: humanities students | M | 4.241 | 4.90 | 3.81 | 4.22 | 4.67 | 3.97 | 4.59 | 3.74 | 4.24 |
| | SD | 1.512 | 1.61 | 1.54 | 1.35 | 1.52 | 1.43 | 1.38 | 1.71 | 1.51 |
| | Average Inter- Item or Item- Total Correlation | .231 | .162 | .383 | .502 | .491 | .706 | .492 | .367 | .100 |
| | Coefficient Alpha or alpha if item dropped | .697 | .719 | .669 | .645 | .644 | .595 | .646 | .674 | .729 |
| | Reliability Gain if Dropped | | 0.022 | | | | | | | |
| | | | | | | | | | | |
| Study 2 (2008): (N=102) Sample: science students | M | 4.74 | 4.79 | 4.64 | 4.89 | 5.54 | 4.63 | 5.16 | 4.22 | 4.09 |
| | SD | 1.386 | 1.48 | 1.41 | 1.33 | 1.21 | 1.43 | 1.34 | 1.43 | 1.49 |
| | Average Inter- Item or Item- Total Correlation | .273 | .356 | .520 | .334 | .395 | .484 | .593 | .513 | .375 |
| | Coefficient Alpha or alpha | .749 | .741 | .708 | .742 | .732 | .715 | .695 | .710 | .737 |
| | | | | | | | | | | |

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| | | | | | | | | | | |
|---------------------------------|--|-------------|------|------|------|------|------|------|------|------|
| All data combined (N=185) | if item dropped | | | | | | | | | |
| | Reliability Gain | | | | | | | | | |
| | if Dropped | | | | | | | | | |
| | M | 4.47 | 4.97 | 4.29 | 4.52 | 4.95 | 4.23 | 4.86 | 3.84 | 4.10 |
| | SD | 1.491 | 1.53 | 1.51 | 1.39 | 1.49 | 1.49 | 1.42 | 1.60 | 1.51 |
| | Average Inter-Item or Item-Total Correlation | .283 | .145 | .500 | .501 | .528 | .622 | .609 | .511 | .267 |
| | Coefficient Alpha or alpha if item dropped | .757 | .785 | .723 | .724 | .718 | .700 | .704 | .720 | .765 |
| Reliability Gain if Dropped | | 0.028 | | | | | | | | |

Table 10: Confirmatory factor analysis of legitimacy items (N=185) (Quayle, 2009)

| | Component | |
|------------------------------|-----------|------|
| | 1 | 2 |
| Legitimacy.1.StpFamiliarity | | .879 |
| Legitimacy.2 | .438 | .669 |
| Legitimacy.3 | .612 | |
| Legitimacy.4 | .724 | |
| Legitimacy.5 | .792 | |
| Legitimacy.6 | .716 | |
| Legitimacy.7 | .767 | |
| Legitimacy.8.rv ¹ | .386 | |

*Loadings <3.5 suppressed

After dropping item one and reverse coding the remaining items the scale was re-piloted but items three and four had extremely similar phrasing and this had inflated the alpha ($\alpha = .901$) (Quayle, 2009). Items five, seven, eight and nine were included in the 2010 study scale.

3.4.5 Stability

Stability is refers to one's perceptions of generally accepted hierarchies and status differences within societies and between groups; these differences may be firmly entrenched and hence resistant to change or delicate and easily changed (Tajfel, 1982).

Sourcing items

¹ RV denotes an item that was reverse phrased and then reverse coded for analysis.

The original scale items were adapted from Mummendey, Klink, Mielke, Wenzel & Blanz (1999) and are listed in Table 11 below (Quayle, 2009).

Table 11: Items in the stability scale (developed by Quayle 2009)

| | |
|----|--|
| 1. | I think the difference between [In-group] and [Out-group] will remain stable for the few next years. |
| 2. | The current difference between [In-group] and [Out-group] is just temporary. |
| 3. | The current difference between [In-group] and [Out-group] will not change easily. |

The items were piloted and then tested in 2008 in two studies and from these studies it was determined that the items had a sufficient alpha, specifically, in the pilot study ($\alpha = .671$) and in study two ($\alpha = .629$) and an unacceptable alpha in study one ($\alpha = .473$) (Quayle, 2009). To source supplementary items further items were developed by Quayle (2009) and re-piloted. Seven items (displayed in Table 12) were re-piloted with a sample of 36 postgraduate psychology students (Quayle, 2009). Factor analysis on the items (Table 12) showed that items one, two, and three cluster around one factor with a good alpha of ($\alpha = .832$) whilst items four, five and seven cluster on a second factor with an acceptable alpha of ($\alpha = .756$) (Quayle, 2009). Item six did not load with the other items on either of the two factors and was dropped (Quayle, 2009). It was decided to keep all six remaining items even though they loaded onto two separate factors as both factors had a good or acceptable reliability respectively ($\alpha = .832$ and $.756$) and seem to be measuring important underlying constructs that link to Stability (Quayle, 2009).

Table 12: Re-piloted items for the stability scale (Quayle, 2009)

| Item | Source |
|---|---------------------------------------|
| 1. I think the difference between [In-group] and [Out-group] will remain stable for the few next years. | Original item 1 |
| 2. *The current gap between [In-group] and [Out-group] is just temporary. | Original item 2 reverse phrasing |
| 3. The current gap between [In-group] and [Out-group] will not change easily. | Original item 3 |
| 4. No matter what they do, [low status group] will never have as much status as [high status group] | Quayle, 2009 |
| 5. It's unlikely that [high status group] will lose their good reputation | Quayle, 2009 |
| 6. [Low status group] is improving all the time | Quayle, 2009 |
| 7. Even if they try their best, [low status] group] | Quayle, 2009 |

will not overtake [high status] group] in terms
of status and privileges

3.4.6 Permeability

Permeability is understood as the ease or difficulty with which a group member can either leave their current group and/or become a member of another group (Tajfel, 1982). Due to the nature of this construct perceptions can vary between high and low status groups, for example a high status group may perceive movement into their group by a low status group as difficult, but not vice versa) (Quayle, 2009). Due to the nature of this construct the items in the 2010 study scale were selected to focus on the in-group to out-group permeability (Quayle, 2009).

Sourcing items

The item pool was developed by Quayle (2009) see Table 13 based on literature on permeability.

Table 13: Items for the permeability scale (Quayle, 2009)

| | |
|----|---|
| 1. | An [in group member] can easily become an [Out-group member] |
| 2. | It would be difficult for an [in group member] to adjust to being an [Out-group member] |
| 3. | An [in group members] would be successful as an [Out-group members] |
| 4. | An [in group member] would feel anxious or fearful about becoming an [Out-group member] |
| 5. | An [in group member] would quickly be accepted as an [Out-group members] |
| 6. | An [Out-group member] can easily become an [in group member] |

The items were piloted and tested using two studies in 2008, the reliability in all three studies was acceptable (Pilot $\alpha = .700$; study one $\alpha .707$; study two $\alpha .723$ and a combined $\alpha = .746$). To further improve the scale five further items were developed in addition to the original four items and piloted on 26 postgraduate psychology students (Quayle, 2009). See table 14 for a list of the items. The nine items had an acceptable reliability of ($\alpha = .772$). From an item analysis (Table 15) items two, four, five and seven were included in the 2010 study scale as they compared well with the original scale with a good alpha ($\alpha = .836$) (Quayle, 2009).

Table 14: Re-piloted items for the permeability scale (Quayle, 2009)

| Items | Source |
|-------|--------|
|-------|--------|

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| | | |
|----|--|------------------------|
| 1. | An [in group member] can easily become an [Out-group member] | Original item 1 |
| 2. | It would be difficult for an [in group member] to adjust to being an [Out-group member] | Original item 2 |
| 3. | An [in group member] would be successful as an [Out-group members] | Original item 3 |
| 4. | An [in group member] would feel anxious about becoming an [Out-group member] | Original item 4 |
| 5. | An [in group member] would feel confident about moving to [the Out-group] | Quayle, 2009 |
| 6. | It is difficult to move from [In-group] to [Out-group] | Quayle, 2009 |
| 7. | [In group members] would fit in well with [the Out-group] | Quayle, 2009 |
| 8. | An [in group member] would be welcomed into [the Out-group] | Quayle, 2009 |
| 9. | An [in group member] would be readily accepted in [the Out-group] | Quayle, 2009 |

Table 15: Item analysis for the permeability scale (Quayle, 2009)

| | | Total | 1 | 2 | 3 | 4 |
|--|--|-------------|------|------|------|-------|
| Pilot Study: (N=23) Sample: psychology honours students | M | 4.424 | 5.09 | 4.35 | 4.74 | 3.52 |
| | SD | 1.557 | 1.53 | 1.92 | 1.13 | 1.53 |
| | Average Inter-Item or Item-Total Correlation | .387 | .695 | .536 | .557 | .251 |
| | Coefficient Alpha or alpha if item dropped | .700 | .497 | .613 | .620 | .769 |
| | Reliability Gain if Dropped | | | | | 0.069 |
| | | | | | | |
| Study 1 (2008): (N=60) Sample: humanities students | M | 3.73 | 4.00 | 3.26 | 4.19 | 3.47 |
| | SD | 1.6 | 1.74 | 1.53 | 1.49 | 1.62 |
| | Average Inter-Item or Item-Total Correlation | .384 | .464 | .542 | .665 | .334 |
| | Coefficient Alpha or alpha if item dropped | .707 | .665 | .615 | .541 | .738 |
| | Reliability Gain if Dropped | | | | | 0.031 |
| | | | | | | |
| Study 2 (2008): (N=102) Sample: science students | M | .4812 | 5.03 | 4.74 | 4.81 | 4.66 |
| | SD | 1.826 | 1.87 | 1.85 | 1.68 | 1.90 |
| | Average Inter-Item or Item-Total Correlation | .397 | .594 | .677 | .483 | .323 |
| | Coefficient | .723 | .610 | .556 | .679 | .771 |

| | | | | | | |
|---------------------------------|---|-------|------|------|------|-------|
| All data combined (N=185) | Alpha or alpha if item dropped | | | | | |
| | Reliability | | | | | 0.048 |
| | Gain if Dropped | | | | | |
| | M | 4.423 | 4.71 | 4.22 | 4.61 | 4.14 |
| | SD | 1.795 | 1.85 | 1.88 | 1.58 | 1.86 |
| | Average Inter- Item or Item- Total Correlation | .426 | .597 | .664 | .553 | .371 |
| | Coefficient | .746 | .654 | .611 | .684 | .781 |
| | Alpha or alpha if item dropped | | | | | |
| | Reliability | | | | | 0.035 |
| | Gain if Dropped | | | | | |

3.4.7 Conflict

The concept of conflict refers to the disagreement or perceived unfairness of the distribution of resources between two groups usually over positive or high group status, as well as realistic resources such as money or food (Tajfel, 1982).

Sourcing items

Four items that assess the emotional component of conflict were adapted from Tropp's (2003) "Emotional states in intergroup contexts" scale which, in turn, had been adapted from Zuckerman and Lubin (1965, as cited in Tropp, 2003), Spielberger, Gorsuch, and Lushene (1970, as cited in Tropp, 2003), and Stephan and Stephan (1985, 1992, as cited in Tropp, 2003) (Quayle, 2009). An additional four items were designed by Quayle (2009).

Table 16: Items in the conflict scale and their sources (Quayle, 2009)

| Scale | | | Source |
|---------|----|---|---------------------------|
| Generic | 1. | I feel IRRITATED when I think about interacting with [the out-group] | Adapted from Tropp (2003) |
| Generic | 2. | I feel UPSET when I think about interacting with [the out-group] | Adapted from Tropp (2003) |
| Generic | 3. | I feel ANGRY when I think about interacting with [the out-group] | Adapted from Tropp (2003) |
| Generic | 4. | I feel FRUSTRATED when I think about interacting with [the out-group] | Adapted from Tropp (2003) |
| Generic | 5. | There is conflict between the [in-group] and [out-group]? | Quayle, 2009 |

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| | | |
|----------|--|----------------------------------|
| Generic | 6. *There is cooperation between the [in-group] and [out-group] | Quayle, 2009 Reverse phrasing |
| Extended | 1. The [in-group]are/were hostile | Quayle, 2009 |
| Extended | 2. The [out-group]are/were hostile | Quayle, 2009 |
| Extended | 3. The [out-group] are/were cooperative | Quayle, 2009 |
| Extended | 4. The [in-group] are/were cooperative | Quayle, 2009 |

The items were piloted and tested using two studies, the reliability of these items was acceptable to good, see table 17, Pilot ($\alpha = .893$), Study one ($\alpha = .886$), Study two ($\alpha = .735$) and all studies combined ($\alpha = .820$) (Quayle, 2009). From statistical analysis it was identified that the extended items (1, 2, 3, 4) reduced the reliability of the items scale ($\alpha = .651$ for the 11 item scale compared to $.735$ for the seven item scale) (Quayle, 2009). Items one, two, three and six were retained in the final 2010 study scale as their alpha was $\alpha = .859$, $.879$ and $.695$ in the pilot and studies one and two respectively (Quayle, 2009).

Table 17: Item analysis for the conflict scale (Quayle, 2009)

| | | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|--|-------------|------|------|------|-------|------|------|-------|
| Pilot Study: (N=23) Sample: psychology honours students | M | 2.894 | 2.17 | 2.00 | 1.91 | 2 | 3.96 | 4.35 | 3.87 |
| | SD | 1.353 | 1.34 | 1.00 | .79 | .74 | 1.74 | 1.64 | 1.77 |
| | Average Inter-Item or Item-Total Correlation | .615 | .800 | .804 | .806 | .577 | .755 | .639 | .772 |
| | Coefficient Alpha or alpha if item dropped | .893 | .864 | .870 | .877 | .894 | .872 | .887 | .870 |
| | Reliability Gain if Dropped | | | | | 0.001 | | | |
| Study 1 (2008): (N=60) Sample: humanities students | M | 3.103 | 2.68 | 2.46 | 2.21 | 2.37 | 3.84 | 4.33 | 3.82 |
| | SD | 1.476 | 1.48 | 1.34 | 1.36 | 1.38 | 1.78 | 1.43 | 1.51 |
| | Average Inter-Item or Item-Total Correlation | .541 | .819 | .858 | .792 | .845 | .643 | .453 | .429 |
| | Coefficient Alpha or alpha if item dropped | .886 | .852 | .850 | .857 | .850 | .878 | .896 | .900 |
| | Reliability Gain if Dropped | | | | | | | 0.01 | 0.014 |
| Study 2 (2008): (N=102) | M | 2.781 | 2.34 | 1.98 | 1.79 | 1.95 | 3.65 | 4.04 | 3.7 |
| | SD | 1.469 | 1.41 | 1.21 | 1.14 | 1.34 | 1.91 | 1.44 | 1.68 |
| | Average Inter- | .321 | .566 | .666 | .664 | .629 | .330 | .146 | .353 |

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| | | | | | | | | | |
|---------------------------------|---|-------------|------|------|------|------|------|------|------|
| Sample: science students | Item or Item-Total Correlation | | | | | | | | |
| | Coefficient Alpha or alpha if item dropped | .735 | .676 | .663 | .667 | .664 | .745 | .768 | .730 |
| | Reliability Gain if Dropped | | | | | | 0.01 | 0.03 | |
| | | | | | | | | 3 | |
| All data combined (N=185) | M | 2.897 | 2.43 | 2.13 | 1.94 | 2.09 | 3.75 | 4.18 | 3.76 |
| | SD | 1.459 | 1.43 | 1.24 | 1.19 | 1.30 | 1.84 | 1.47 | 1.63 |
| | Average Inter- Item or Item-Total Correlation | .427 | .687 | .754 | .726 | .695 | .483 | .324 | .427 |
| | Coefficient Alpha or alpha if item dropped | .820 | .775 | .769 | .775 | .776 | .817 | .834 | .821 |
| | Reliability Gain if Dropped | | | | | | | 0.01 | 0.00 |
| | | | | | | | | 4 | 1 |

3.4.8 Social desirability

A pervasive issue in self-report based research is social desirability which can be defined as the “desire of respondents to avoid embarrassment and project a favourable image to others” (Fisher, 1993, p.303). Included in the scale is set of social desirability questions as it is necessary to have a valid and reliable measure of social desirability for self-report based research in the SA context (DeVellis, 2002). The items were sourced and slightly adapted from Hays, Hayashi, and Stewart’s (1989) five-item version of the Crowne-Marlowe social desirability scale (Quayle, 2009).

The slightly reworded/adapted items included in the 2010 scale (Quayle, 2009):

1. **I am always polite, even to people who are unpleasant.**
2. **There have been occasions when I took advantage of someone.**
3. **I sometimes try to get even with people rather than forgive and forget.**
4. **I sometimes feel resentful when I don’t get my way.**
5. **No matter who I’m talking to, I’m always a good listener.**

3.4.9 Demographics

Finally a few demographic questions were added at the very end of the questionnaire. The questions focused on the sex of the participant (either male or female). The participants race, using the four main racial categories outlined in the Population Registration Act of 1950 until amended in the Identification Amendment Act of 1995, the participants classified themselves into one of the five racial categories, namely, Black, White, Indian, Coloured and Other² (Heinz, 2000). Additionally there was a question on the home language of the participant, this question attempted to explore what the first language or home language of the participant was. The questionnaire was in English (because the tertiary education institution is an English medium institution) and thus second language English speakers could have possibly responded in similar or dissimilar patterns due to difficulty with the English terms or phrasing of the questions. Finally, participants were asked to report the degree for which they were currently registered. These questions were asked at the end of the questionnaire as opposed to the beginning of the questionnaire to ensure that the participants did not draw on group memberships that were not salient or of central importance in the questionnaire, for example if sex was salient we would not want participants drawing on their race group membership and then answering the questions whilst drawing on that group identity. However, as these demographics are important extraneous variables that might have influence the participants' responses they were therefore included in the questionnaire.

Once the final 42 scale items were collated to form the final 2010 study scale; the items were then re-piloted using two separate group conditions, these study conditions will now be discussed in greater detail (see Appendices A, B, C, D for the final questionnaire for each group).

3.5 Study design

Questions focusing on Social Identity can only be asked in relation to specific categorisations, group identities and status hierarchies. Therefore two sets of group comparisons had to be

² Not belonging to any of the designated racial groups specified within the questionnaire.

carefully chosen such that the participants' patterns of responses are likely to differ in predictable ways so that patterns of responses could be used to partially validate the scales. The two sets of group comparisons that were conceptualised were referred to as condition one: salient sex identity and condition two: salient student identity. These two conditions were chosen because; although all participants are university students they can still belong to the naturally occurring groups outlined in the two conditions. Furthermore the two conditions vary on certain socio-structural constructs that would allow for one to compare the results from each of these conditions to each other in order to attain the study aims (outlined in chapter two, Key aims of the study) as well as to test the four hypotheses. Each of these conditions will now be discussed in detail.

3.5.1 Condition one: Salient sex identity

Condition one focused on the social group identity that one has based on one's sex, namely, male or female. This social group is mutually exclusive (a man cannot belong to both male and female groups or vice versa) and normally impermeable and membership to this group is not generally an autonomous choice but rather biologically predetermined. This condition was chosen specifically for its impermeable boundaries as well as the social history attached to this group and the fact that members do not choose to belong to these groups, they are born into them. Furthermore, one would be guaranteed to find males and females within the university education context. For this condition the researcher sought to recruit tertiary students at any academic level or stage that belonged to either the male or female group. After recruitment there were 306 participants in condition one of which, 106 were male and 200 were female; all participants except for one male were undergraduate students.

Using a short introductory explanation all the participants in condition one were made aware of the fact that males are more likely to, or often earn more money in the job market than females (Credit today, 2007; Grand, 1991; Fitzpatrick, 2010; Rathje, 2002,). This was done in order to

make ones' sex the salient social group identity. Once the participants were made aware of their group identity and status (men : high status; women: low status) they were asked to answer various questions pertaining to socio-structural constructs such as in-group/out-group closeness, in-group/out-group identification, group permeability, stability, legitimacy, conflict, differentiation and in-group/out-group homogeneity. Males were asked to respond to the scale items using a questionnaire where the male group is the in-group and the female group is the out-group and females were given a questionnaire where males were the out-group and females were the in-group (for these questionnaires see appendix A and B). This condition would allow the researcher to test all four hypotheses (outlined in chapter two) as there was a clear status difference between group members and this difference was illegitimate as men earn/earned more money than women merely for being men and finally, this group was impermeable.

3.5.2 Condition two: Salient student identity

In condition two the group identity used or focused on was based on student identities, namely, undergraduates or postgraduates. These two groups are mutually exclusive (one cannot belong to both the undergraduate and postgraduate group) and group boundaries are permeable (if one attains a degree and is accepted into a postgraduate course then one can become a postgraduate group member; or a postgraduate can register for an undergraduate degree and become an undergraduate group member). Membership to either of these groups is generally an autonomous choice, as one applies for a degree or for postgraduate studies. This condition was chosen specifically for its permeability and the fact that members choose to belong to these groups. Furthermore, one would be guaranteed to find undergraduates and postgraduates within the university/tertiary education context. For this condition the researcher sought to recruit any second or third year students that belonged to the undergraduate group as undergraduate students nearing the end of their studies may have considered postgraduate studies at this point in their academic career. Postgraduate students at any level (honours, masters or doctorate) were recruited and for both groups students from any of the university's faculties were asked to

participate in the study. After recruitment there were 190 participants in condition two of which, 109 were undergraduates and 81 were postgraduates.

After a short introductory explanation all the participants in condition two were made aware of the fact that people who graduate with postgraduate degrees earn more money in the job market than those with undergraduate degrees (Careers24, 2007; How to Edu, 2010). This was done in order to make participants aware of their group identity (undergraduate or postgraduate) and make this identity salient as well as evoke a status inequality (undergraduates: low status and postgraduates: high status). Participants were asked to answer various questions pertaining to constructs such as in-group/out-group closeness, in-group/out-group identification, group permeability, stability, legitimacy, conflict, differentiation and in-group/out-group homogeneity. Undergraduates were asked to respond to the scale items using a questionnaire where the undergraduate group is the in-group and the postgraduate group is the out-group and postgraduates were given a questionnaire where undergraduates are the out-group and postgraduates are the in-group (for questionnaires see Appendix C and D). This condition allowed the researcher to test all four hypotheses (outlined in chapter two) as there was a clear status difference between the two groups and this difference was legitimate as postgraduates earn more money because they worked toward a postgraduate degree and finally, these groups had permeable boundaries.

3.6 Sampling and procedures

3.6.1 Sampling design

The researcher had aimed for a complete sample size of 500 as this was a practical, manageable and feasible sample size. Furthermore, as the aim of this study was to determine the validity and reliability of the study scale one would need to conduct a factor analysis in order to attain this aim. However there are sample size requirements that need to be met in order to conduct a factor analysis Fabrigar, Wegener, MacCallum and Strahan (1999) present the following summary of the literature,

“guidelines were reviewed and discussed by Arrindell and van der Ende (1985) and more recently by Velicer and Fava (1998). Let us consider a sampling of recommendations regarding absolute sample size. Gorsuch (1983) recommended that N should be at least 100, and Kline (1979) supported this recommendation. Guilford (1954) argued that N should be at least 200, and Cattell (1978) claimed the minimum desirable N to be 250. Comrey and Lee (1992) offered a rough rating scale for adequate sample sizes in factor analysis: 100 = poor, 200 = fair, 300 = good, 500 = very good, 1,000 or more = excellent. They urged researchers to obtain samples of 500 or more observations whenever possible in factor analytic studies (p.84).”

The final sample size for the study was $n = 510$ (however 14 participants did not enter their race or sex, giving the researcher a valid $n=496$). Thus this sample size was deemed satisfactory. The study drew on a non-random, convenience sampling technique in order to select participants (Durrheim, 2002a). Participants were directly approached and recruited into the study or recruited through the use of the University email system (Loewenthal, 2002). Traditional randomised sampling techniques were too expensive, as well as time consuming to use in this study but would have been the ideal sampling technique in a quantitative study such as this (Miles & Huberman, 1994). In order to participate in the study, all the participants had to be university students and over the age of eighteen in order for them to give their informed consent to participate in the study; no students under the age of eighteen were allowed to participate in the study.

All University students were given access to personal computers and the internet via Local Area Networks (LANs) that are easily accessible at every faculty, on every campus. It was therefore deduced that the most inclusive method of sampling was to recruit University students for participation into the study via an internal electronic university notice that was circulated to all potential participants as well as through the use of posters and pamphlets that were handed out in areas where students tend to congregate. The University Registrar approved the notice and

the study (including the two study conditions), before any of the students were emailed. This was done to ensure that the University as well as the study was not breaking or in contravention to any university rules or acting in contradiction to students' rights (see Appendix E for the university registrar's approval letter).

The electronic university notice was then emailed directly to all students via their university email addresses. This ensured that every student with email access was able to access the online questionnaires. In order to supplement this recruitment technique, in case some students did not use or check their university email, pamphlets and posters with the links to the questionnaires were handed out to students. To ensure that students were fairly recruited these materials were handed out in areas where all students, from all faculties congregated and was done so at different times during the day, week or month. These areas included the students' cafeterias, libraries, faculty offices as well as an advert in the student newspaper. The links to the questionnaires were live for four months and accessible every day, 24 hours a day. The researchers email address was also given to participants to assist with any unforeseen troubleshooting, provide technical support and assistance as well as to address any study related queries or concerns. However, none of these issues or problems occurred or were reported, the site was tested daily by the researcher in order to ensure that all was running as it should.

3.6.2 Population and study sample

The study sample was drawn using University students from the University of KwaZulu-Natal. This University has 5 campuses across KwaZulu-Natal and 52 faculties (University of KwaZulu-Natal Online, 2011). The study was conducted in 2010 and during 2007 -2010 the University had between 5386 and 7992 students (University of KwaZulu-Natal Online, 2011). The majority of students at this University at this time were reportedly Black/African (55%) and the number of Indian (32%) and White (9%) students registering had decreased between this time period (University of KwaZulu-Natal Online, 2011). Of these students 58% were female and 42% were male; the majority, 78.77% were undergraduates and 21.23% were postgraduates (University of KwaZulu-Natal Online, 2011). As previously mentioned the combined study sample consisted of 510 university students; 36.3% males and 63.7% females,

57.4% were undergraduates and 42.6% were postgraduates. From this one can conclude that the demographic make-up of the study sample was more or less similar to that of the study population/sampling frame.

3.7 Data Collection

The data for condition one: salient sex identity (males and females) and condition two: salient student identity (undergraduates and postgraduates) was collected using online questionnaires (four in total, one for each group – males, females, undergraduates and postgraduates) these could be completed online by all participants (see Appendices A, B, C, D for these questionnaires). The online questionnaire did not exclude anyone in the University community as all University students have internet access via the university's Local Area Network (LANS). These LANs were easily accessed at each of the various University faculties ensuring that all students regardless of their faculty have access to the internet.

Once a student decided to participate they were able to access the questionnaires via the links provided. Clear instructions were given to all students to ensure they were able to easily complete the questionnaire. Students were instructed to click on the links that best described them.

The descriptions were as follows:

1. If you are a male or female in your first year of study please, click here
2. If you are a postgraduate student please, click here
3. If you are a male student in your second or third year of study please, click here
4. If you are a female student in your second or third year of study please, click here

Through these descriptions participants were made aware of one of two possible, mutually exclusive categories in each study, namely, condition one: salient sex identity (males and females) or condition two: salient student identity (undergraduates and postgraduates). Participants were allowed to complete the questionnaire that they felt most closely matched or depicted their identity. This ensured that the participant's group identity was made salient at the

very beginning of the questionnaire and reinforced through their choice to identify themselves as a member of one of the four groups. After participants selected their group a realistic and non-deceptive status inequality was evoked for both conditions, namely, that one group earns more money in the job market than the other group (Refer to the first page of either Appendix A, B, C, D for the status inequality). This was done in order to ensure that participants were aware of a status difference between the two groups in either of the study conditions and to ensure that they could be asked to recall this status difference throughout the questionnaire. In condition one, Males were the high status group and Females were the low status group; in condition two, Undergraduates were the low status group and Postgraduates were the high status group. Participants had no idea at the onset of the study, what the status of each group within the study was and therefore could not bias results by selecting the highest status group (for example if a female postgraduate student was aware at the onset of the status differences she would most likely choose the high status postgraduate group as opposed to the low status female group). Whichever group the participants selected or identified themselves as, was the in-group and the remaining group was the out-group.

3.9 Data Analysis

This project drew on theories of measurement and basic item analysis. Classical test theory is most often used in psychological test construction as it is flexible, is best suited for homogenous populations (such as the tertiary students in the study sample), combines information about bias and association and can compare the reliability of different measures (Maranell, 2007). Reliability and Item analysis are used in the construction of reliable scales and can be used to improve scales; using item analysis one can also calculate statistics that follow the classical testing theory model (DeVellis, 2003). The collected data was captured and exported into a database in real time using the Limesurvey online survey platform (Cleeland, 2009). The data was then analysed using a Statistical Program for the Social Science (SPSS). In order to attain these aims the statistical analysis was completed in three phases (namely):

- Phase one: Descriptive and Reliability analysis
- Phase two: Factor Analysis

- Phase three: Hypothesis tests

Each of these will now be further discussed.

3.9.1 Phase one: Descriptive and Reliability analysis

Descriptive statistics:

This section provides an overview and description of the basic distribution of the samples in each of the study conditions as well as the combined sample. The descriptive statistics focused on the demographic questions answered by each participant namely, sex, race, home language and degree registered for.

Reliability analysis:

Scale reliability is an essential and an important feature of any scale as it provides a measure of a scales internal consistency or the homogeneity of the items in the scale (DeVellis, 2003). DeVellis (2003) elaborates that ‘a measures reliability equals the proportion of total variance among its items that is due to the latent variable and thus is communal’ (p.35). This is important in psychological research when one attempts to measure theoretical constructs, in a quantifiable or precise way (Loewenthal, 2002). Therefore if the reliability analysis rendered high correlation between the items, it is strongly indicative of the statistical probability that these variables are correctly or accurately measuring the same underlying theoretical construct, namely, the socio-structural variables underpinning SIT (DeVellis, 2003).

The reliability analysis therefore calculated Chronbach’s Alpha (the coefficient representing internal consistency) multiple times – once on the complete data set, once using the sample from condition one and once using the sample from condition two. This analysis allowed for the comparison of the alpha scores across each of the data sets. Through these comparisons the analysis was able to determine the overall performance of the scale’s reliability in a variety of situations/contexts as well as across the two study conditions. It is expected that a robust scale

that is suitable for use across a diverse range of research contexts should maintain good reliability across these study conditions.

3.9.2 Phase two: Factor Analysis

Factor analysis is at its core a data reduction technique which attempts to condense information “so that variation can be accounted for by using a smaller number of variables” (DeVellis, 2003, p.103). One of the primary functions of factor analysis is therefore to determine the number of latent variables (factors) which underlie a set of items (DeVellis, 2003). In scale development this can be approached in two ways, either through the use of exploratory factor analysis or confirmatory factor analysis (DeVellis, 2003). Exploratory factor analysis is usually a data driven approach, where the number of factors to be extracted are not identified *a priori* but rather emerge through the factor analysis solution (Fabrigar, Wegener, MacCallum & Strahan, 1999). In contrast, confirmatory factor analysis requires that the exact number of factors to be extracted are specified before any analysis is conducted. This can be done if the researcher believes that there is a strong case, based on theory, for the items in the scale to measure certain latent variables. Once specified, the data is fitted to this model to assess the extent to which the items do in fact account for variance present in the theoretical constructs which they should be measuring (Fabrigar et al., 1999). As the scale which this study is attempting to validate contains items based on nine theoretical constructs, drawn from Social Identity Theory, a confirmatory factor analysis was deemed most suitable to determine whether the items actually do measure said underlying constructs.

3.9.3 Phase three: Hypothesis tests

Briefly the four hypotheses supported by Social Identity Theory (SIT) as it applies to the social situations invoked in the present study are:

Hypothesis one: Members of high status groups will express greater in-group identification than members of low status groups.

Hypothesis two: Members of low status groups with permeable boundaries identify less with their in-group than in-group members of low status groups with impermeable boundaries.

Hypothesis three: Group members who strongly identify with their in-group are more likely to accentuate in-group homogeneity, than group members who do not strongly identify with their in-group.

Hypothesis four: Females (aka low status impermeable groups with an illegitimate high status) will have greater levels of conflict than Undergraduates (aka low status group members with permeable boundaries and legitimate status differences).

Data analyses methods for phase three

Multiple regression was suitable for the analysis because they allow for more than one independent variable to be analysed simultaneously (Durrheim, 2002). These tests are also able to determine whether (or not) there are any significant interactions between the independent variables (Durrheim, 2002).

What are the implications of a significant result?

There is a large body of Social Identity literature that allowed the researchers to form these hypotheses and if the statistical tests of these hypotheses are significant then this would indicate that the theoretical predictions or hypothesis were replicated. This finding would then serve as an indicator of the scales construct, concurrent, predictive and criterion validity. If the scale is found to have a good construct validity this would mean that the scale items are in fact congruent with the theory underpinning the construct, furthermore construct validity is essential in order to ensure that a measure is valid overall (Simms, 2008). If the scale has a good concurrent validity then the one can conclude that the scale items relate to other measure of the underlying construct (Loewenthal, 2002). If the predictions are significant this would indicate

that the scale is able to predict reactions and draw meaningful conclusions in relation to the underlying scale constructs and participants performance on the scale (Loewenthal, 2002). Finally if the hypotheses are significant it would mean that the scale has criterion validity and the scale measures differ as theoretically predicted according to certain criterion, for example, status inequalities or permeability of group boundaries and based on this criterion members of different groups may respond differently on the same scale (Loewenthal, 2002). Durrheim (2002b) provide a definition of criterion validity that demonstrates its importance, they refer to criterion validity as “how well the scale or test anticipates a criterion behaviour or outcome, either at the present time (concurrent validity) or in the future (predictive validity)” (p.217).

However, if the hypotheses are not significant this could indicate any of the following:

- That one or more of the scales lack validity.
- That the study lacks power.
- That the specific theoretical predictions are not relevant to the specific social situation in the local South African tertiary context for some unforeseen reason.

Power considerations

Statistical power (based on sample size)

There are two key reasons for having a large sample size one being that the possibility of sample bias is reduced and the other is that a large sample increases the statistical power of the associations and findings of one's study (Howell, 2007; Loewenthal, 2002). Cohen (as cited in Loewenthal, 2002, p.47) defines statistical power as “the probability that a given investigation will lead to statistically significant results”. It is therefore an important concern in most studies and most certainly was in this study. Most theorists specify that a power of 0.80 with a medium effect size, when alpha is 0.05 is sufficient (DeVellis, 2003; Field, 2005; Howell, 2007; Loewenthal, 2002). Using this standard the post-hoc power for study one and study two will now be reported.

For condition one: salient sex identity (males and females)

With a sample size of 306 of which one group (males) were 106 and the other group (females) were 200, at Alpha ($\alpha = 0.05$), two tailed, at medium effect size ($\delta = 0.5$) the power to detect a significant result is 0.994. This is an acceptable/good power.

For condition two: salient student identity (undergraduates and postgraduates)

With a sample size of 190 of which one group had 81 participants (Postgraduates) and group two had 109 participants (Undergraduates), at alpha = 0.05, two tailed, at medium effect size ($\delta = 0.5$) the power to detect a significant result is 0.956. This is an acceptable/good power.

3.10 Ethical Issues and Concerns

The ethical principles that guide psychological research were of utmost importance to the researcher and were adhered to closely. Ethical principles of specific concern to the study will now be discussed.

Informed consent was important in all research as it ensures that the dignity of participants is maintained throughout the research study (Clark-Carter, 1997). Informed consent requires that the researcher inform and clearly stipulate the objectives of the study as well as any aspect of the study that may influence the participants desire to participate in the study to all study participants (Wassenaar, 2002). Throughout the study when participants indicated a willingness to participate in the study they were first given a brief information sheet that explained the aims and objectives of the study. They were then asked to confirm that they were 18 years of age as all participants had to be 18 in order to consent to participation in the study. They were then asked to give their consent to participate in the study by agreeing (ticking yes) that they have read the information sheet and instructions and that they understand what they have read, as well as that they understood that participation was voluntary and finally that they agreed to participate in the research study (refer to Appendix F for a copy of the informed consent). If

participants did not tick yes to any of these questions they were given the researchers as well as the research supervisor's email and contact details in order to address any issues that were unclear or that needed to be addressed. However, throughout the data collection process none of the participants contacted either the researcher or research supervisor with any concerns or queries. Participants were given the option to opt out at any point of the study and if participants did not agree to participate they were able to close the screen and exit the study.

Participation was entirely voluntary and participants were free to withdraw from the study at any point during the questionnaire. Participants were informed of this right from the very onset of the research study. Participants could also withdraw the information they had given thus far by choosing not to save the data and to exit or they could submit an incomplete questionnaire by saving the data and exiting the study. If participants chose either of these options an automatic email was sent to them that included the debriefing information that explained the reasons for evoking the status difference (refer to Appendix A, B, C, or D). Although there was no deception in this study the story at the beginning of the questionnaire may have caused some participants to feel uncomfortable and there was therefore a short debriefing at the end of the questionnaire that explained the reason for evoking a status difference as well as thanking the participant and stating that this difference need not perpetuate into future generations (this debriefing is at the end of each questionnaire refer to Appendix A,B, C, or D to view).

All participant information was completely anonymous; there was no way to link a completed questionnaire back to a participant. If a participant had any difficulty or issues of concern during the questionnaire then they could confidentially email the researcher for assistance. The participant could then save a copy of the questionnaire and then anonymously complete and submit it to the researcher.

There was a minor incentive for participation in the study that was approved by the ethics committee as well as the university registrar; participants were given the option of entering their names in for a lucky draw to win an mp3 player. However, less than half of the participants entered the draw, n=230. The winner was selected, when the questionnaires were offline, using

an online random number generator. Although there were no overt benefits (other than a chance to enter the lucky draw) students that chose to participate in the study would have had an opportunity to be exposed to research that focuses on scale development. Participants were also informed that they would be adding to a body of knowledge around the issue under investigation (Refer Appendix F).

The data collected from both of these studies was stored on a secure drive that was password protected and only the researcher and research supervisor have authorised access to the data. As per ethics committee regulations after the data storage period of five years elapses data will be destroyed.

Clark-Carter (1997) argues that it is the responsibility of the researcher to publish all research findings even non-significant research findings. Therefore every attempt to publish these research findings in a reputable journal or the equivalent thereof will be made. The research may be presented at conferences. This research was conducted for the purposes of attaining a Masters degree in Psychology and will be written and presented for said reason. The anonymity and confidentiality of all participants was maintained from data collection phase until the very end of the research process (namely, the write up). As there is no way to link the participants to the questionnaires there is therefore no risk of breaching the participants' confidentiality and anonymity.

Chapter Four: Results

As mentioned in Chapter two: Literature review, the core aim of this project is to assess whether or not the Social Identity Theory (SIT) variables that have been collated from SIT literature as well as international scales (listed in Chapter three: Methodology) are able to serve as a reliable and/or valid scale measure of SIT within the South African tertiary education context.

The three phases of statistical analysis outlined and discussed in Chapter three: Methodology will now be reported on:

Phase one: Descriptive and Reliability analysis

The descriptive statistics for the entire sample will be reported on in relation to the population they were drawn from (students at the University of KwaZulu-Natal). This will be done in order to explore and determine the degree to which the sample is representative of the local population. The reliability analysis was conducted and reported for each of the nine sub-samples thrice, (1) on the sample from condition one and (2) on the sample from condition two and (3) on the complete sample.

Phase two: Factor Analysis

A factor analysis was then run on the entire sample and reported on.

Phase three: Hypothesis testing

Finally, the four hypotheses outlined in the Literature review, study aims (chapter two) were tested by running *T*-tests, and a multiple regression. Each hypothesis was reported on individually.

4.1 Phase one: Descriptive statistics and Reliability analysis

4.1.1 Descriptive statistics

This section will succinctly provide an overview and description of the basic distribution of the study sample.

4.1.1.1 Sample descriptives

The study sample consisted of 36.3% or 180 males and 63.7% or 316 females (Figure 2). The racial breakdown was 66% Black participants, 14.1 % White participants, and 13.7 % Indian participants. 56.6% of the participants reported that they spoke English at home and 33.3% reported that they spoke isiZulu at home. Figures 2, 3 and 4 graphically depict the study sample in comparison to the population sample; from these Figures one can conclude that the demographic make-up of the study sample is demographically representative of the study population/sampling frame.

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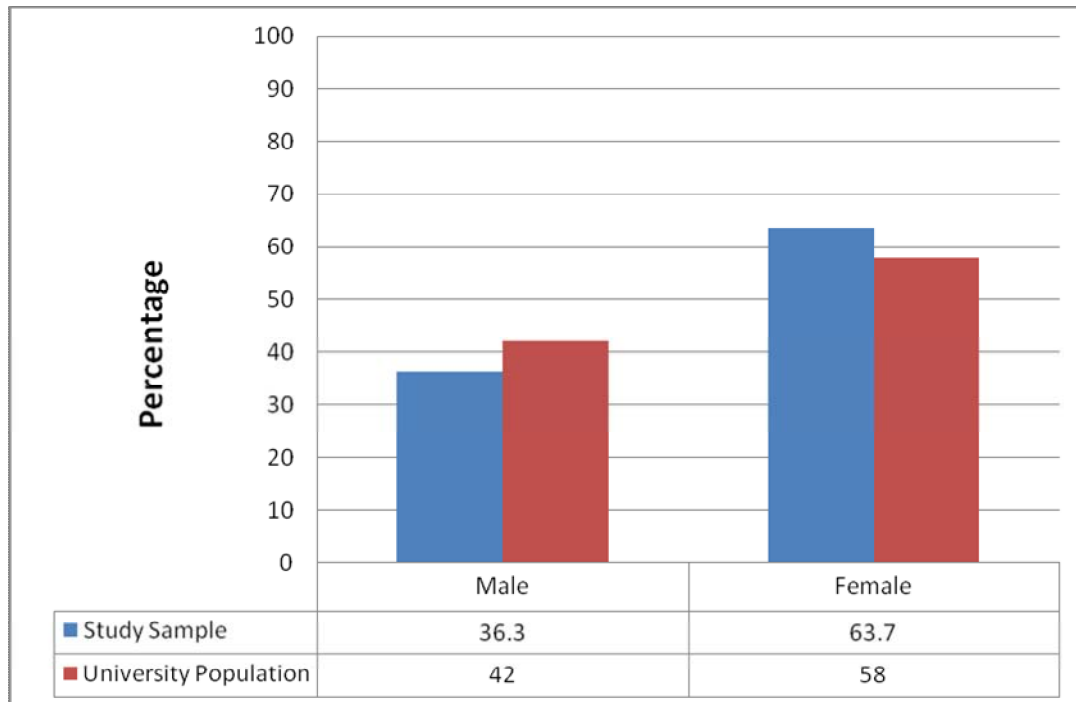


Figure 2: Bar graph illustrating the Male and Female in the combined study sample in comparison to the University population

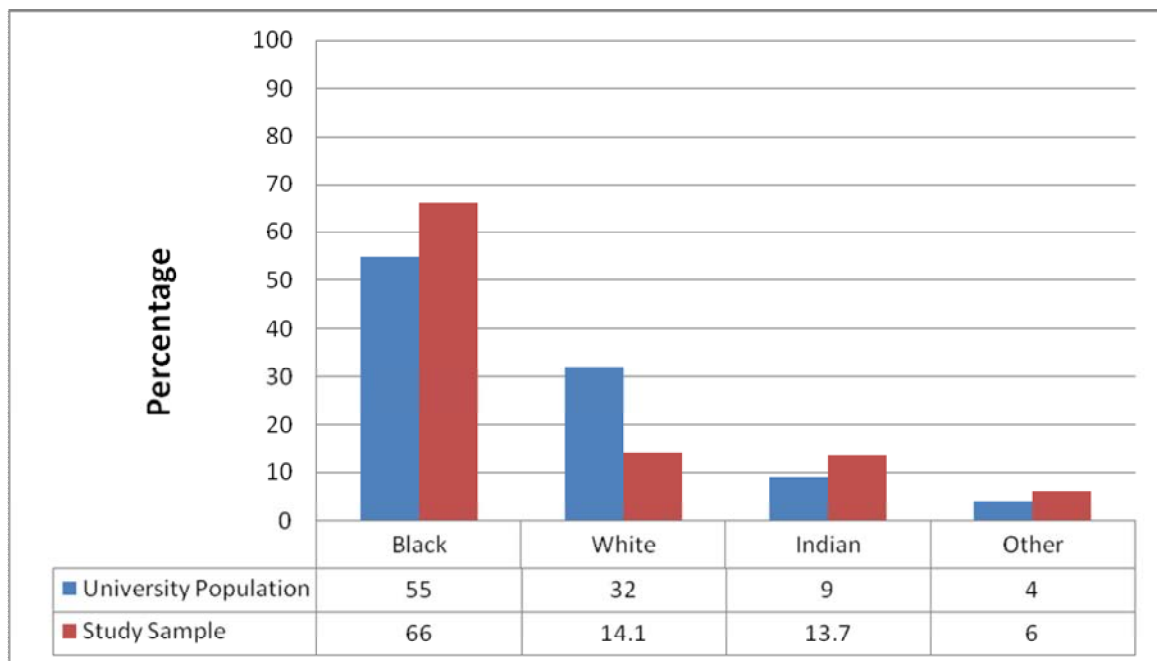


Figure 3: Bar graph illustrating the racial breakdown of the combined study sample in comparison to the University population

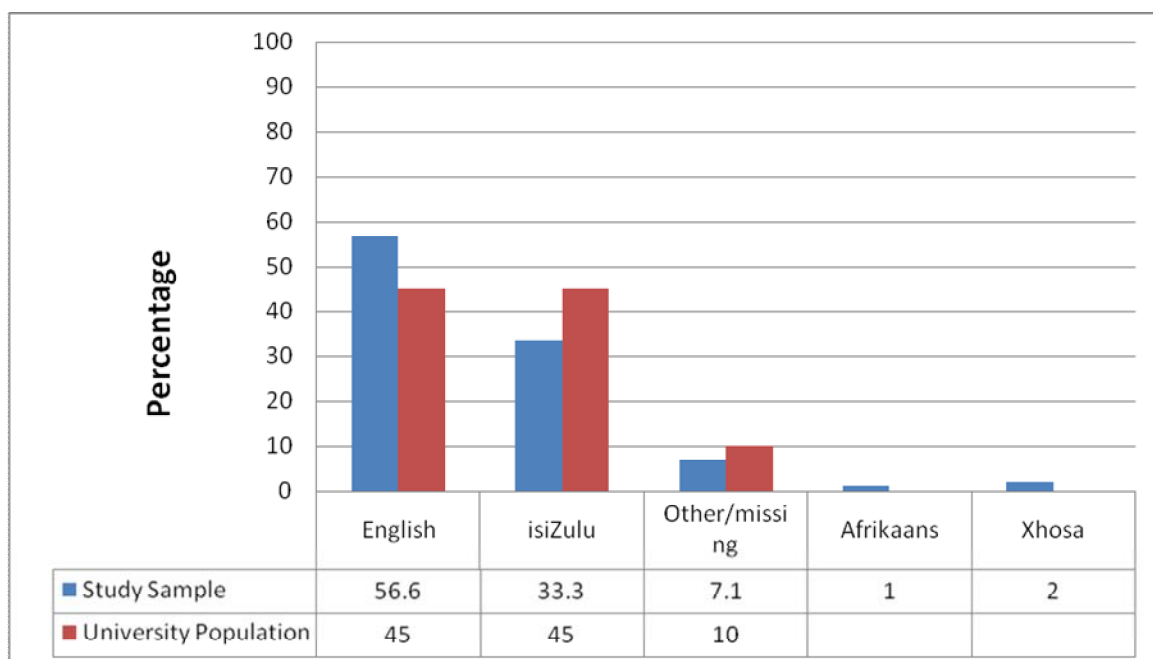


Figure 4: Bar graph illustrating the home language of students in the combined study sample in comparison to the University population

Table 17 depicts the home language of the combined sample as well as group membership. A total of 481 participants answered this question. The majority, 279, of participants reported that they spoke English at home and the second most spoken language was isiZulu with 164 Participants reporting that they isiZulu at home. Other languages that were reported was Afrikaans (Five Participants), and isiXhosa (Ten Participants). This is not consistent with the population demographics but may be due to some of the Black participants being bilingual but choosing to state that English is their main home language.

Also within Table 17 is the breakdown of group membership and the degree participants are currently registered for. In Condition one there were 103 Males registered for Undergraduate degrees and one male registered for a Postgraduate degree. There were 199 Females registered for undergraduate degrees and no females registered for postgraduate degrees. In Condition two there were 109 Undergraduates registered for undergraduate degrees and 81 Postgraduates registered for postgraduate degrees.

Table 18: Cross-tabulation of combined sample group membership, home language and degree registered for

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| Count | | | HomeLanguage | | | | | Total |
|------------------|-----------------------|-----------|--------------|---------|---------|----------|-------|-------|
| Group membership | | | Afrikaans | English | IsiZulu | IsiXhosa | Other | |
| Male | Postgrad or Undergrad | Undergrad | 1 | 46 | 46 | 1 | 9 | 103 |
| | | Postgrad | 0 | 1 | 0 | 0 | 0 | 1 |
| | Total | | 1 | 47 | 46 | 1 | 9 | 104 |
| Female | Postgrad or Undergrad | Undergrad | 1 | 110 | 67 | 7 | 14 | 199 |
| | Total | | 1 | 110 | 67 | 7 | 14 | 199 |
| Undergrad | Postgrad or Undergrad | Undergrad | 2 | 62 | 34 | 2 | 9 | 109 |
| | Total | | 2 | 62 | 34 | 2 | 9 | 109 |
| Postgrad | Postgrad or Undergrad | Postgrad | 1 | 60 | 17 | | 3 | 81 |
| | Total | | 1 | 60 | 17 | | 3 | 81 |

Condition one comprised of 306 Participants of which, 106 were male and 200 were female. Of the 106 male participants, 76 were Black, six were Coloured, 12 were Indian, 10 were White and two participants classified themselves as Other. Of the females, 146 were Black, 10 were Coloured, 23 were Indian, 18 were White and three participants classified themselves as Other. The majority, 305, of participants were undergraduates whilst one male was a postgraduate.

Condition two consisted of 190 participants, of these 116 were females and 74 were males. Of the 74 male participants 46 were Black, two Coloured, 6 Indian and 20 White and of the 116 female participants 60 Black, 3 Coloured, 27 Indian, 22 White, and 4 classified themselves as other. One hundred and nine of the Undergraduate group members were Undergraduate students. Of the Undergraduate group members 62 spoke English at home and 34 spoke isiZulu at home. In the Postgraduate group 81 of the participants reported that they were Postgraduate students.

This concludes the descriptive statistics section for the complete sample, condition one and condition two. The next section will discuss and focus on the reliability analysis.

4.1.2. Reliability analysis

The next and last aspect of the Phase one, the reliability analysis, will now be reported on.

The reliability/internal consistency of a scale is most commonly determined through the use of correlation coefficients (DeVellis, 2003). The analysis was conducted on the complete study sample, then on the data set for condition one and finally the data set for condition two; this allowed for the comparison of the alpha scores across each of the data sets. The reliability analysis for each data set will now be reported on.

4.1.2.1. Group Differentiation

Condition one

The Group differentiation sub-scale contained five items. The reliability analysis (Table 18) shows that the items/sub-scale for condition one has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .564$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

| Table 19: Cronbach's alpha of Group Differentiation Condition one | | |
|---|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .564 | .553 | 5 |

The sub-scale descriptives are ($M = 21.71$, $SD = 4.90$). When exploring Table 19, items one and five correlate negatively with each other and most items have a low correlation with item one. When examining Table 20 Cronbach's alpha is increased to a sufficient alpha of ($\alpha = 0.652$) when Item one is deleted. None of the other items would increase Cronbach's alpha if deleted.

Table 20: Inter-Item Correlation Matrix of Group Differentiation (Condition one)

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| | Group Differentiation 1 | Group Differentiation 2 | Group Differentiation 3 | Group Differentiation 4 RV | Group Differentiation 5 RV |
|---|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------------|
| Group Differentiation 1 | 1.000 | .083 | .044 | .013 | -.073 |
| Group Differentiation 2 | .083 | 1.000 | .606 | .258 | .206 |
| Group Differentiation 3 | .044 | .606 | 1.000 | .276 | .165 |
| Group Differentiation 4 RV ³ | .013 | .258 | .276 | 1.000 | .405 |
| Group Differentiation 5 RV | -.073 | .206 | .165 | .405 | 1.000 |

Table 21: Item-Total Statistics of Group Differentiation (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|-------------------------------|-----------------------------------|--------------------------------------|---------------------------------|-------------------------------------|
| Group Differentiation 1 | 18.6710 | 21.432 | .024 | .016 | .652 |
| Group Differentiation 2 | 16.4290 | 15.113 | .484 | .386 | .409 |
| Group Differentiation 3 | 16.2161 | 15.613 | .459 | .383 | .427 |
| Group Differentiation 4 RV | 17.4194 | 15.377 | .390 | .214 | .466 |
| Group Differentiation 5 RV | 18.1032 | 17.575 | .290 | .182 | .527 |

Condition two

The reliability analysis (Table 21) shows that the items/sub-scale in condition two has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .593$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 22: Cronbach's alpha for Group Differentiation Condition two

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---------------------|--|------------|
| .593 | .545 | 5 |

The sub-scale descriptives are ($M = 22.18$, $SD = 4.60$). When exploring Table 22, item one correlates negatively with all of the items in this sub-scale. When examining Table 23 Cronbach's alpha is increased to an acceptable alpha of ($\alpha = 0.751$) when Item 1 is deleted. None of the other items would increase Cronbach's alpha if deleted.

Table 23: Inter-Item Correlation Matrix of Group Differentiation (Condition two)

³ RV denotes an item that was reverse phrased and then reverse coded for analysis.

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| | Group Differentiation 1 | Group Differentiation 2 | Group Differentiation 3 | Group Differentiation 4 RV | Group Differentiation 5 RV |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------------|
| Group Differentiation 1 | 1.000 | -.103 | -.208 | -.214 | -.170 |
| Group Differentiation 2 | -.103 | 1.000 | .578 | .340 | .257 |
| Group Differentiation 3 | -.208 | .578 | 1.000 | .540 | .348 |
| Group Differentiation 4 RV | -.214 | .340 | .540 | 1.000 | .563 |
| Group Differentiation 5 RV | -.170 | .257 | .348 | .563 | 1.000 |

Table 24: Item-Total Statistics of Group Differentiation (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| Group Differentiation 1 | 20.1795 | 22.354 | -.232 | .061 | .751 |
| Group Differentiation 2 | 16.5692 | 15.030 | .449 | .338 | .494 |
| Group Differentiation 3 | 16.6359 | 13.305 | .560 | .474 | .423 |
| Group Differentiation 4 RV | 17.3744 | 11.534 | .576 | .455 | .387 |
| Group Differentiation 5 RV | 17.9590 | 12.369 | .453 | .324 | .474 |

Complete sample

The reliability analysis (Table 24) shows that the items/sub-scale for condition one has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .552$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 25: Cronbach's alpha for Group Differentiation
(complete sample)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---------------------|--|------------|
| .552 | .539 | 5 |

The sub-scale descriptives are ($M = 21.89$, $SD = 4.79$). When exploring Table 25, item one correlates negatively with all of the items in this sub-scale. When examining Table 26 Cronbach's alpha is increased to a sufficient alpha of ($\alpha = 0.696$) when Item one is deleted. None of the other items would increase Cronbach's alpha if deleted.

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Table26: Inter-Item Correlation Matrix of Group Differentiation (Complete Sample)

| | Group Differentiation 1 | Group Differentiation 2 | Group Differentiation 3 | Group Differentiation 4 RV | Group Differentiation 5 RV |
|----------------------------|----------------------------|----------------------------|----------------------------|-------------------------------|----------------------------------|
| Group Differentiation 1 | 1.000 | -.007 | -.036 | -.105 | -.159 |
| Group Differentiation 2 | -.007 | 1.000 | .595 | .294 | .235 |
| Group Differentiation 3 | -.036 | .595 | 1.000 | .366 | .233 |
| Group Differentiation 4 RV | -.105 | .294 | .366 | 1.000 | .480 |
| Group Differentiation 5 RV | -.159 | .235 | .233 | .480 | 1.000 |

Table 27: Item-Total Statistics of Group Differentiation (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| Group Differentiation 1 | 19.2535 | 22.285 | -.110 | .028 | .696 |
| Group Differentiation 2 | 16.4832 | 15.056 | .468 | .366 | .406 |
| Group Differentiation 3 | 16.3782 | 14.736 | .493 | .394 | .389 |
| Group Differentiation 4 RV | 17.4020 | 13.868 | .448 | .302 | .405 |
| Group Differentiation 5 RV | 18.0475 | 15.541 | .338 | .253 | .481 |

4.1.2.2 In-group Homogeneity

Condition one

The In-group Homogeneity sub-scale contained four items. The reliability analysis (Table 27) shows that the items/sub-scale has in condition one (by psychometric standards and rule of thumb) an acceptable internal consistency, $\alpha = .717$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 28: Cronbach's alpha of In-group Homogeneity

| (Condition one) | | |
|---------------------|---|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .717 | .718 | 4 |

The sub-scale descriptives are ($M = 18.36$, $SD = 4.82$). When looking at Table 28 one is able to note that all items correlate more or less with each other, the items that correlate lowest with

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each other are items one and four. Through examining Table 29 one can deduce that none of the items would increase Cronbach's alpha if deleted.

Table 29: Inter-Item Correlation Matrix of In-group Homogeneity (Condition one)

| | In-group Homogeneity 1 | In-group Homogeneity 2 | In-group Homogeneity 3 | In-group Homogeneity 4 |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| In-group Homogeneity 1 | 1.000 | .425 | .344 | .206 |
| In-group Homogeneity 2 | .425 | 1.000 | .550 | .422 |
| In-group Homogeneity 3 | .344 | .550 | 1.000 | .389 |
| In-group Homogeneity 4 | .206 | .422 | .389 | 1.000 |

Table 30: Item-Total Statistics of In-group Homogeneity (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| In-group Homogeneity 1 | 14.0543 | 14.648 | .414 | .198 | .713 |
| In-group Homogeneity 2 | 14.1022 | 12.195 | .630 | .408 | .570 |
| In-group Homogeneity 3 | 13.3259 | 14.464 | .569 | .346 | .621 |
| In-group Homogeneity 4 | 13.5911 | 15.909 | .426 | .213 | .699 |

Condition two

The reliability analysis (Table 30) shows that the items/sub-scale has in condition two (by psychometric standards and rule of thumb) an acceptable internal consistency, $\alpha = .780$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 31: Cronbach's alpha for In-group Homogeneity (Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---------------------|--|------------|
| .780 | .781 | 4 |

The sub-scale descriptive are ($M = 17.53$, $SD = 5.14$). When exploring Table 31, it is evident that all items correlate with each other reasonably well/moderately. When examining Table 32 one can conclude that none of the items would increase Cronbach's alpha if deleted.

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Table 32: Inter-Item Correlation Matrix of In-group Homogeneity (Condition two)

| | In-group Homogeneity 1 | In-group Homogeneity 2 | In-group Homogeneity 3 | In-group Homogeneity 4 |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| In-group Homogeneity 1 | 1.000 | .488 | .520 | .442 |
| In-group Homogeneity 2 | .488 | 1.000 | .526 | .399 |
| In-group Homogeneity 3 | .520 | .526 | 1.000 | .453 |
| In-group Homogeneity 4 | .442 | .399 | .453 | 1.000 |

Table 33: Item-Total Statistics of In-group Homogeneity (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| In-group Homogeneity 1 | 13.2944 | 15.484 | .604 | .367 | .717 |
| In-group Homogeneity 2 | 13.2284 | 15.596 | .585 | .353 | .728 |
| In-group Homogeneity 3 | 12.8731 | 15.928 | .631 | .400 | .705 |
| In-group Homogeneity 4 | 13.1878 | 16.725 | .525 | .279 | .757 |

Complete Sample

The reliability analysis (Table 33) shows that the items/sub-scale has in condition one (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .743$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 34: Cronbach's alpha for In-group Homogeneity

| (Complete Sample) | | |
|---------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .743 | .744 | 4 |

The sub-scale descriptive are ($M = 18.04$, $SD = 4.96$). When exploring Table 34, it is evident that all items correlate with each other reasonably well/moderately. When examining Table 35 one can conclude that none of the other items would increase Cronbach's alpha if deleted.

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Table 35: Inter-Item Correlation Matrix of In-group Homogeneity (Complete Sample)

| | In-group Homogeneity 1 | In-group Homogeneity 2 | In-group Homogeneity 3 | In-group Homogeneity 4 |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| In-group Homogeneity 1 | 1.000 | .448 | .412 | .300 |
| In-group Homogeneity 2 | .448 | 1.000 | .535 | .407 |
| In-group Homogeneity 3 | .412 | .535 | 1.000 | .425 |
| In-group Homogeneity 4 | .300 | .407 | .425 | 1.000 |

Table 36: Item-Total Statistics of In-group Homogeneity (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| In-group Homogeneity 1 | 13.7608 | 15.078 | .487 | .248 | .714 |
| In-group Homogeneity 2 | 13.7647 | 13.662 | .604 | .375 | .643 |
| In-group Homogeneity 3 | 13.1510 | 15.048 | .596 | .364 | .653 |
| In-group Homogeneity 4 | 13.4353 | 16.231 | .468 | .232 | .721 |

4.1.2.3 Out-group Homogeneity

Condition one:

The Out-group Homogeneity sub-scale contained four items. The reliability analysis in condition one (Table 36) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .717$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 37: Cronbach's alpha of Out-group Homogeneity

| (Condition one) | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .717 | .723 | 4 |

The sub-scale descriptives ($M = 18.89$, $SD = 4.50$). When exploring Table 37 one is able to note that all items correlate more or less with each other, the items that correlate least with each

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other are items one and four. Through examining Table 38 one it is evident that deleting item one would increase Cronbach's alpha to an acceptable ($\alpha = .728$). No other items would increase Cronbach's alpha if deleted.

Table 38: Inter-Item Correlation Matrix of Out-group Homogeneity (Condition one)

| | Out-group Homogeneity 1 | Out-group Homogeneity 2 | Out-group Homogeneity 3 | Out-group Homogeneity 4 |
|-------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Out-group Homogeneity 1 | 1.000 | .348 | .321 | .268 |
| Out-group Homogeneity 2 | .348 | 1.000 | .475 | .415 |
| Out-group Homogeneity 3 | .321 | .475 | 1.000 | .540 |
| Out-group Homogeneity 4 | .268 | .415 | .540 | 1.000 |

Table 39: Item-Total Statistics of Out-group Homogeneity (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| Out-group Homogeneity 1 | 14.2939 | 12.990 | .389 | .157 | .728 |
| Out-group Homogeneity 2 | 14.4824 | 11.699 | .538 | .296 | .635 |
| Out-group Homogeneity 3 | 13.7348 | 12.471 | .589 | .380 | .610 |
| Out-group Homogeneity 4 | 14.1725 | 12.489 | .523 | .327 | .644 |

Condition two

The reliability analysis (Table39) shows that the items/sub-scale has in condition two (by psychometric standards and rule of thumb) a good internal consistency, $\alpha = .812$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 40: Cronbach's alpha for Out-group Homogeneity (Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---------------------|--|------------|
| .812 | .812 | 4 |

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The sub-scale descriptives are ($M = 16.86$, $SD = 5.31$). When exploring Table 40, it is evident that all items correlate with each other reasonably well/moderately. When examining Table 41 one can conclude that none of the items would increase Cronbach's alpha if deleted.

Table 41: Inter-Item Correlation Matrix of Out-group Homogeneity (Condition two)

| | Out-group Homogeneity 1 | Out-group Homogeneity 2 | Out-group Homogeneity 3 | Out-group Homogeneity 4 |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Out-group Homogeneity 1 | 1.000 | .550 | .511 | .341 |
| Out-group Homogeneity 2 | .550 | 1.000 | .677 | .521 |
| Out-group Homogeneity 3 | .511 | .677 | 1.000 | .516 |
| Out-group Homogeneity 4 | .341 | .521 | .516 | 1.000 |

Table 42: Item-Total Statistics of Out-group Homogeneity (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Out-group Homogeneity 1 | 12.6904 | 17.511 | .554 | .338 | .801 |
| Out-group Homogeneity 2 | 12.6650 | 15.897 | .731 | .546 | .716 |
| Out-group Homogeneity 3 | 12.4213 | 15.898 | .706 | .518 | .727 |
| Out-group Homogeneity 4 | 12.7970 | 18.101 | .541 | .321 | .805 |

Complete Sample

The reliability analysis in condition one (Table 42) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .769$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 43: Cronbach's alpha for Out-group Homogeneity (Complete Sample)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .769 | .771 | 4 |

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The sub-scale descriptives are ($M = 18.11$, $SD = 4.92$). When exploring Table 43, it is evident that all items correlate with each other reasonably well/moderately. When examining Table 44 one can conclude that none of the items would increase Cronbach's alpha if deleted.

Table 44: Inter-Item Correlation Matrix of Out-group Homogeneity (Complete Sample)

| | Out-group Homogeneity 1 | Out-group Homogeneity 2 | Out-group Homogeneity 3 | Out-group Homogeneity 4 |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Out-group Homogeneity 1 | 1.000 | .433 | .419 | .316 |
| Out-group Homogeneity 2 | .433 | 1.000 | .561 | .462 |
| Out-group Homogeneity 3 | .419 | .561 | 1.000 | .550 |
| Out-group Homogeneity 4 | .316 | .462 | .550 | 1.000 |

Table 45: Item-Total Statistics of Out-group Homogeneity (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Out-group Homogeneity 1 | 13.6745 | 15.316 | .472 | .235 | .767 |
| Out-group Homogeneity 2 | 13.7804 | 14.077 | .616 | .388 | .689 |
| Out-group Homogeneity 3 | 13.2275 | 14.176 | .655 | .444 | .670 |
| Out-group Homogeneity 4 | 13.6412 | 15.075 | .547 | .339 | .726 |

4.1.2.4 In-group Identification

Condition one

The In-group Identification sub-scale contained six items. The reliability analysis (Table 45) shows that the items/sub-scale has in condition one (by psychometric standards and rule of thumb) a sufficient internal consistency, $\alpha = .661$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 46: Cronbach's alpha of In-group Identification
(Condition one)

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| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .661 | .663 | 6 |

The sub-scale descriptives are ($M = 31.51$, $SD = 5.73$). When looking at Table 46 one can note that all items correlate more or less with each other, the items that correlate least with each other are items four and six. Through examining Table 47 one see's that deleting item one would increase Cronbach's alpha ($\alpha = .667$). Deleting item six would keep Cronbach's alpha at ($\alpha = .661$). No other items would increase Cronbach's alpha if deleted.

Table 47: Inter-Item Correlation Matrix of In-group Identification (Condition one)

| | In-group Identification 1 | In-group Identification 2 | In-group Identification 3 | In-group Identification 4 | In-group Identification 5 | In-group Identification 6 RV |
|------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------------------------------|
| In-group Identification 1 | 1.000 | .241 | .354 | .071 | .076 | .153 |
| In-group Identification 2 | .241 | 1.000 | .679 | .272 | .306 | .190 |
| In-group Identification 3 | .354 | .679 | 1.000 | .380 | .310 | .195 |
| In-group Identification 4 | .071 | .272 | .380 | 1.000 | .205 | .060 |
| In-group Identification 5 | .076 | .306 | .310 | .205 | 1.000 | .210 |
| In-group Identification 6 RV | .153 | .190 | .195 | .060 | .210 | 1.000 |

Table 48: Item-Total Statistics of In-group Identification (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| In-group Identification 1 | 27.1286 | 24.990 | .268 | .139 | .667 |
| In-group Identification 2 | 26.5113 | 21.431 | .561 | .473 | .551 |
| In-group Identification 3 | 26.5627 | 21.382 | .672 | .547 | .516 |
| In-group Identification 4 | 26.3151 | 24.720 | .308 | .158 | .650 |
| In-group Identification 5 | 25.9711 | 24.957 | .338 | .144 | .637 |
| In-group Identification 6 RV | 25.0675 | 28.547 | .245 | .076 | .661 |

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Condition two

The reliability analysis (Table 48) shows that the items/sub-scale has in condition two (by psychometric standards and rule of thumb) a sufficient internal consistency, $\alpha = .690$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 49: Cronbach's alpha for In-group Identification (Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .690 | .697 | 6 |

The sub-scale descriptives are ($M = 29.18$, $SD = 6.37$). When exploring Table 49, it is evident that most items correlate with each other reasonably well/moderately, the items that have the lowest correlation are items one and four. When examining Table 50 one can conclude that none of the items would increase Cronbach's alpha if deleted.

Table 50: Inter-Item Correlation Matrix of In-group Differentiation (Condition two)

| | In-group Identification 1 | In-group Identification 2 | In-group Identification 3 | In-group Identification 4 | In-group Identification 5 | In-group Identification 6 RV |
|------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------------------------------|
| In-group Identification 1 | 1.000 | .199 | .411 | .127 | .202 | .264 |
| In-group Identification 2 | .199 | 1.000 | .494 | .177 | .318 | .157 |
| In-group Identification 3 | .411 | .494 | 1.000 | .305 | .396 | .284 |
| In-group Identification 4 | .127 | .177 | .305 | 1.000 | .294 | .189 |
| In-group Identification 5 | .202 | .318 | .396 | .294 | 1.000 | .340 |
| In-group Identification 6 RV | .264 | .157 | .284 | .189 | .340 | 1.000 |

Table 51: Item-Total Statistics of In-group Differentiation (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| In-group Identification 1 | 24.9643 | 28.640 | .360 | .193 | .677 |
| In-group Identification 2 | 24.5204 | 29.861 | .413 | .263 | .651 |
| In-group Identification 3 | 24.5867 | 27.187 | .622 | .415 | .581 |
| In-group Identification 4 | 24.5255 | 31.338 | .321 | .133 | .682 |
| In-group Identification 5 | 24.0255 | 29.625 | .474 | .255 | .632 |
| In-group Identification 6 RV | 23.2959 | 33.071 | .375 | .169 | .664 |

Complete Sample

The reliability analysis (Table 51) shows that the items/sub-scale (by psychometric standards and rule of thumb) a low sufficient consistency, ($\alpha = .684$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 52: Cronbach's alpha for In-group Identification (Complete Sample)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .684 | .690 | 6 |

The sub-scale descriptives are ($M = 30.61$, $SD = 6.09$). When exploring Table 52, it is evident that most items correlate with each other reasonably well/moderately, the items that have the lowest correlation are items one and four. When examining Table 53 one can conclude that none of the other items would increase Cronbach's alpha if deleted. If item one were deleted then alpha would remain the same.

Table 53: Inter-Item Correlation Matrix of In-group Differentiation (Complete Sample)

| | In-group Ident 1 | In-group Ident 2 | In-group Ident 3 | In-group Ident 4 | In-group Ident 5 | In-group Ident 6 RV |
|------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------|
| In-group Identification 1 | 1.000 | .226 | .382 | .100 | .134 | .208 |
| In-group Identification 2 | .226 | 1.000 | .605 | .245 | .319 | .191 |
| In-group Identification 3 | .382 | .605 | 1.000 | .359 | .354 | .252 |
| In-group Identification 4 | .100 | .245 | .359 | 1.000 | .254 | .144 |
| In-group Identification 5 | .134 | .319 | .354 | .254 | 1.000 | .283 |
| In-group Identification 6 RV | .208 | .191 | .252 | .144 | .283 | 1.000 |

Table 54: Item-Total Statistics of In-group Differentiation (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| In-group Identification 1 | 26.2919 | 27.460 | .310 | .162 | .684 |
| In-group Identification 2 | 25.7416 | 25.579 | .502 | .379 | .611 |
| In-group Identification 3 | 25.7988 | 24.505 | .655 | .488 | .561 |
| In-group Identification 4 | 25.6233 | 27.982 | .330 | .150 | .672 |
| In-group Identification 5 | 25.2189 | 27.606 | .406 | .195 | .645 |
| In-group Identification 6 RV | 24.3826 | 30.980 | .325 | .123 | .670 |

4.1.2.5 Legitimacy

Condition one

The Legitimacy sub-scale contained four items. The reliability analysis (Table 54) shows that the items/sub-scale has in condition one (by psychometric standards and rule of thumb) an poor internal consistency, $\alpha = .531$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 55: Cronbach's alpha of Legitimacy(Condition one)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .531 | .549 | 4 |

The sub-scale descriptives are ($M = 15.46$, $SD = 4.43$). When examining Table 55, the items that correlate lowest with each other are items one, two and four. Through examining Table 56 one see's that deleting item four would greatly increase Cronbach's alpha to an acceptable ($\alpha = .733$). None of the other items would increase Cronbach's alpha if deleted.

Table 56: Inter-Item Correlation Matrix of Legitimacy (Condition one)

| | Legitimacy 1 | Legitimacy 2 | Legitimacy 3 RV | Legitimacy 4 RV |
|-----------------|--------------|--------------|-----------------|-----------------|
| Legitimacy 1 | 1.000 | .612 | .418 | -.058 |
| Legitimacy 2 | .612 | 1.000 | .426 | -.027 |
| Legitimacy 3 RV | .418 | .426 | 1.000 | .030 |
| Legitimacy 4 RV | -.058 | -.027 | .030 | 1.000 |

Table 57: Item-Total Statistics of Legitimacy (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Legitimacy 1 | 11.4601 | 11.320 | .472 | .407 | .319 |
| Legitimacy 2 | 11.0958 | 11.805 | .511 | .409 | .304 |
| Legitimacy 3 RV | 11.7764 | 11.251 | .424 | .224 | .359 |
| Legitimacy 4 RV | 12.0479 | 16.623 | -.021 | .007 | .733 |

Condition two

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The reliability analysis (Table 57) shows that the items/sub-scale has (by psychometric standards and rule of thumb) apoor internal consistency, ($\alpha = .589$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 58: Cronbach's alpha for Legitimacy
(Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .589 | .609 | 4 |

The sub-scale descriptives are ($M = 18.39$, $SD = 4.10$). When exploring Table 58, it is evident that most items correlate with each other reasonably well/moderately, the items that have the lowest correlation are items two and four. When examining Table 59 one can conclude that if item 4 were deleted it would increase Cronbach's alpha to a sufficient ($\alpha = .685$); none of the other items would increase Cronbach's alpha if deleted.

Table 59: Inter-Item Correlation Matrix of Legitimacy (Condition two)

| | Legitimacy 1 | Legitimacy 2 | Legitimacy 3 RV | Legitimacy 4 RV |
|-----------------|--------------|--------------|-----------------|-----------------|
| Legitimacy 1 | 1.000 | .511 | .292 | .136 |
| Legitimacy 2 | .511 | 1.000 | .501 | .030 |
| Legitimacy 3 RV | .292 | .501 | 1.000 | .214 |
| Legitimacy 4 RV | .136 | .030 | .214 | 1.000 |

Table 60: Item-Total Statistics of Legitimacy (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Legitimacy 1 | 13.7716 | 10.157 | .418 | .276 | .477 |
| Legitimacy 2 | 13.1827 | 10.977 | .489 | .409 | .444 |
| Legitimacy 3 RV | 13.4467 | 9.871 | .465 | .291 | .439 |
| Legitimacy 4 RV | 14.7563 | 11.848 | .169 | .071 | .685 |

Combined Sample

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The reliability analysis (Table 60) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .587$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 61: Cronbach's alpha for Legitimacy (Complete Sample)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .587 | .600 | 4 |

The sub-scale descriptives are ($M = 16.59$, $SD = 4.53$). When exploring Table 61, it is evident that most items correlate with each other reasonably well/moderately, the items that have the lowest correlation are items one and four and two and four. When examining Table 62 one can conclude that if item four were deleted it would increase Cronbach's alpha to an acceptable ($\alpha = .743$); none of the other items would increase Cronbach's alpha if deleted.

Table 62: Inter-Item Correlation Matrix of Legitimacy (Complete Sample)

| | Legitimacy 1 | Legitimacy 2 | Legitimacy 3 RV | Legitimacy 4 RV |
|-----------------|--------------|--------------|-----------------|-----------------|
| Legitimacy 1 | 1.000 | .596 | .408 | .020 |
| Legitimacy 2 | .596 | 1.000 | .499 | .008 |
| Legitimacy 3 RV | .408 | .499 | 1.000 | .107 |
| Legitimacy 4 RV | .020 | .008 | .107 | 1.000 |

Table 63: Item-Total Statistics of Legitimacy (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Legitimacy 1 | 12.3529 | 12.119 | .480 | .372 | .426 |
| Legitimacy 2 | 11.9020 | 12.497 | .541 | .435 | .393 |
| Legitimacy 3 RV | 12.4216 | 11.360 | .481 | .278 | .417 |
| Legitimacy 4 RV | 13.0941 | 16.494 | .059 | .014 | .743 |

4.1.2.6 Stability

Condition one

The Stability sub-scale contained six items. The reliability analysis (Table 63) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a sufficient internal consistency, ($\alpha = .604$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table64: Cronbach's alpha of Stability (Condition one)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .604 | .592 | 6 |

The sub-scale descriptives are ($M = 25.99$, $SD = 5.78$). When one observes Table64 one is able to note that the items that correlate lowest with each other re items three and six. Through examining Table 65 one can see that deleting item six would increase Cronbach's alpha ($\alpha = .639$). None of the other items would increase Cronbach's alpha if deleted.

Table 65: Inter-Item Correlation Matrix of Stability (Condition one)

| | Stability 1 | Stability 2 | Stability 3 | Stability 4 | Stability 5 RV | Stability 6 |
|----------------|-------------|-------------|-------------|-------------|----------------|-------------|
| Stability 1 | 1.000 | .386 | .595 | .195 | .167 | .024 |
| Stability 2 | .386 | 1.000 | .461 | .082 | .055 | .077 |
| Stability 3 | .595 | .461 | 1.000 | .198 | .074 | -.002 |
| Stability 4 | .195 | .082 | .198 | 1.000 | .335 | .161 |
| Stability 5 RV | .167 | .055 | .074 | .335 | 1.000 | .116 |
| Stability 6 | .024 | .077 | -.002 | .161 | .116 | 1.000 |

Table 66: Item-Total Statistics of Stability (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Stability 1 | 21.7942 | 22.041 | .506 | .387 | .483 |
| Stability 2 | 22.2058 | 23.841 | .380 | .239 | .541 |
| Stability 3 | 22.1447 | 21.531 | .485 | .429 | .489 |
| Stability 4 | 20.9196 | 26.377 | .318 | .161 | .568 |
| Stability 5 RV | 21.5241 | 26.876 | .230 | .131 | .602 |
| Stability 6 | 21.3794 | 29.423 | .110 | .039 | .639 |

Condition two

The reliability analysis (Table 66) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a sufficient internal consistency, ($\alpha = .641$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 67: Cronbach's alpha for Stability
(Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .644 | .641 | 6 |

The sub-scale descriptives are ($M = 25.84$, $SD = 5.75$). When exploring Table 67, it is evident that most items correlate with each other poorly, the items that have the lowest correlation are items one and five. When examining Table 68 one can conclude that none of the items would increase Cronbach's alpha if deleted.

Table 68: Inter-Item Correlation Matrix of Stability (Condition two)

| | Stability 1 | Stability 2 | Stability 3 | Stability 4 | Stability 5 RV | Stability 6 |
|----------------|-------------|-------------|-------------|-------------|----------------|-------------|
| Stability 1 | 1.000 | .342 | .569 | .146 | .017 | .053 |
| Stability 2 | .342 | 1.000 | .420 | .114 | .090 | .135 |
| Stability 3 | .569 | .420 | 1.000 | .247 | .065 | .108 |
| Stability 4 | .146 | .114 | .247 | 1.000 | .479 | .281 |
| Stability 5 RV | .017 | .090 | .065 | .479 | 1.000 | .375 |
| Stability 6 | .053 | .135 | .108 | .281 | .375 | 1.000 |

Table 69: Item-Total Statistics of Stability (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Stability 1 | 22.2437 | 22.767 | .396 | .338 | .593 |
| Stability 2 | 21.9036 | 24.251 | .378 | .203 | .599 |
| Stability 3 | 22.4721 | 21.495 | .504 | .407 | .545 |
| Stability 4 | 20.7970 | 25.163 | .392 | .286 | .595 |
| Stability 5 RV | 21.0102 | 26.765 | .294 | .299 | .628 |
| Stability 6 | 20.7868 | 27.036 | .279 | .163 | .632 |

Complete Sample

The reliability analysis (Table 69) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a sufficient internal consistency, ($\alpha = .612$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 70: Cronbach's alpha for Stability

| (Complete Sample) | | |
|-------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .612 | .602 | 6 |

The sub-scale descriptives are ($M = 25.94$, $SD = 5.76$). When exploring Table 70, it is evident that most items correlate with each other poorly, the items that have the lowest correlation are items one, five and six. When examining Table 71 one can conclude that deleting item six would increase Cronbach's alpha to ($\alpha = .631$).

Table 71: Inter-Item Correlation Matrix of Stability (Complete Sample)

| | Stability 1 | Stability 2 | Stability 3 | Stability 4 | Stability 5 RV | Stability 6 |
|----------------|-------------|-------------|-------------|-------------|----------------|-------------|
| Stability 1 | 1.000 | .356 | .593 | .175 | .091 | .010 |
| Stability 2 | .356 | 1.000 | .437 | .094 | .071 | .103 |
| Stability 3 | .593 | .437 | 1.000 | .216 | .055 | .018 |
| Stability 4 | .175 | .094 | .216 | 1.000 | .382 | .202 |
| Stability 5 RV | .091 | .071 | .055 | .382 | 1.000 | .217 |
| Stability 6 | .010 | .103 | .018 | .202 | .217 | 1.000 |

Table 72: Item-Total Statistics of Stability (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Stability 1 | 21.9685 | 22.326 | .448 | .368 | .521 |
| Stability 2 | 22.0886 | 23.974 | .377 | .216 | .553 |
| Stability 3 | 22.2717 | 21.500 | .484 | .425 | .502 |
| Stability 4 | 20.8720 | 25.859 | .346 | .201 | .568 |
| Stability 5 RV | 21.3248 | 26.843 | .244 | .170 | .605 |
| Stability 6 | 21.1496 | 28.526 | .161 | .075 | .631 |

4.1.2.7 Permeability

Condition one

The Permeability sub-scale contained four items. The reliability analysis (Table 72) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .705$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 73: Cronbach's alpha of Permeability

| (Condition one) | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .705 | .704 | 4 |

The sub-scale descriptives are ($M = 17.71$, $SD = 5.10$). When looking at Table 73 one is able to note that the items that correlate lowest with each other are items two and four. Through examining Table 74 one can see that none of the items would increase Cronbach's alpha if deleted.

Table 74: Inter-Item Correlation Matrix of Stability (Condition one)

| | Permeability 1 | Permeability 2 | Permeability 3 RV | Permeability 4 RV |
|-------------------|----------------|----------------|----------------------|----------------------|
| Permeability 1 | 1.000 | .577 | .352 | .319 |
| Permeability 2 | .577 | 1.000 | .316 | .195 |
| Permeability 3 RV | .352 | .316 | 1.000 | .480 |
| Permeability 4 RV | .319 | .195 | .480 | 1.000 |

Table 75: Item-Total Statistics of Stability (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Permeability 1 | 13.0673 | 14.661 | .562 | .386 | .594 |
| Permeability 2 | 13.1667 | 16.236 | .480 | .349 | .648 |
| Permeability 3 RV | 13.2372 | 16.445 | .502 | .292 | .635 |
| Permeability 4 RV | 13.6635 | 17.105 | .420 | .258 | .683 |

Condition two

The reliability analysis (Table 75) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a poor internal consistency, ($\alpha = .569$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 76: Cronbach's alpha for Permeability
(Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .569 | .570 | 4 |

The sub-scale descriptives are ($M = 15.91$, $SD = 4.73$). When exploring Table 76, it is evident that most items correlate with each other moderately to poorly, the items that have the lowest correlation are items two and three. When examining Table 77 one can conclude that none of the other items would increase Cronbach's alpha if deleted.

Table 77: Inter-Item Correlation Matrix of Permeability (Condition two)

| | Permeability 1 | Permeability 2 | Permeability 3 RV | Permeability 4 RV |
|-------------------|----------------|----------------|-------------------|-------------------|
| Permeability 1 | 1.000 | .360 | .163 | .275 |
| Permeability 2 | .360 | 1.000 | .155 | .213 |
| Permeability 3 RV | .163 | .155 | 1.000 | .330 |
| Permeability 4 RV | .275 | .213 | .330 | 1.000 |

Table 78: Item-Total Statistics of Permeability (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Permeability 1 | 11.6396 | 13.691 | .382 | .173 | .471 |
| Permeability 2 | 11.7157 | 14.123 | .345 | .148 | .502 |
| Permeability 3 RV | 12.5888 | 15.090 | .292 | .119 | .544 |
| Permeability 4 RV | 11.7817 | 14.692 | .391 | .168 | .468 |

It is interesting to note that permeability was the primary difference between the two conditions. Condition one was selected for its impermeability and condition two for its

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permeability and this may be the reason behind the difference in reliability for this constructs, between these two conditions.

Complete Sample

The Permeability sub-scale contained four items. The reliability analysis (Table 78) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a sufficient internal consistency, ($\alpha = .658$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 79: Cronbach's alpha for Permeability
(Complete Sample)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .658 | .657 | 4 |

The sub-scale descriptives are ($M = 17.01$, $SD = 5.04$). When exploring Table 79, it is evident that most items correlate with each other moderately to poorly, the items that have the lowest correlation are items two and four. When examining Table 80 one can conclude that none of the items would increase Cronbach's alpha if deleted.

Table 80: Inter-Item Correlation Matrix of Permeability (Complete Sample)

| | Permeability 1 | Permeability 2 | Permeability 3 RV | Permeability 4 RV |
|-------------------|----------------|----------------|-------------------|-------------------|
| Permeability 1 | 1.000 | .495 | .291 | .298 |
| Permeability 2 | .495 | 1.000 | .265 | .198 |
| Permeability 3 RV | .291 | .265 | 1.000 | .393 |
| Permeability 4 RV | .298 | .198 | .393 | 1.000 |

Table 81: Item-Total Statistics of Permeability (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Permeability 1 | 12.5147 | 14.742 | .501 | .296 | .544 |

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| | | | | | |
|-------------------|---------|--------|------|------|------|
| Permeability 2 | 12.6051 | 15.889 | .436 | .261 | .591 |
| Permeability 3 RV | 12.9862 | 15.990 | .421 | .202 | .601 |
| Permeability 4 RV | 12.9352 | 16.982 | .394 | .191 | .618 |

4.1.2.8 Conflict

Condition one

The Conflict sub-scale contained four items. The reliability analysis (Table 81) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .763$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 82: Cronbach's alpha of Conflict

| (Condition one) | | |
|---------------------------|--------------------|------------|
| Cronbach's Alpha Based on | | |
| Cronbach's Alpha | Standardized Items | N of Items |
| .763 | .757 | 4 |

The sub-scale descriptives are ($M = 10.02$, $SD = 4.57$). When looking at Table 82 one is able to note that the items that correlate lowest with each other are items three and four. Through examining Table 83 one can see that deleting item four would greatly increase Cronbach's alpha ($\alpha = .885$) if deleted. None of the other items would increase alpha if deleted.

Table 83: Inter-Item Correlation Matrix of Conflict (Condition one)

| | Conflict 1 | Conflict 2 | Conflict 3 | Conflict 4 RV |
|---------------|------------|------------|------------|---------------|
| Conflict 1 | 1.000 | .760 | .665 | .219 |
| Conflict 2 | .760 | 1.000 | .750 | .137 |
| Conflict 3 | .665 | .750 | 1.000 | .098 |
| Conflict 4 RV | .219 | .137 | .098 | 1.000 |

Table 84: Item-Total Statistics of Conflict (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|

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| | | | | | |
|---------------|--------|--------|------|------|------|
| Conflict 1 | 7.4840 | 10.379 | .739 | .612 | .598 |
| Conflict 2 | 7.7436 | 11.484 | .749 | .685 | .604 |
| Conflict 3 | 7.8269 | 12.021 | .669 | .586 | .649 |
| Conflict 4 RV | 7.0032 | 16.904 | .170 | .052 | .885 |

Condition two

The reliability analysis (Table 84) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .721$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 85: Cronbach's alpha for Conflict (Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .721 | .735 | 4 |

The sub-scale descriptives are ($M=9.87$, $SD = 4.23$). When exploring Table 85, it is evident that most items correlate with each other moderately, the items that have the lowest correlation are items one and four. When examining Table 86 one can conclude that if item four were deleted then Cronbach' alpha would increase to a good internal consistency ($\alpha = .834$); none of the other items would increase Cronbach's alpha if deleted.

Table 86: Inter-Item Correlation Matrix of Conflict (Condition two)

| | Conflict 1 | Conflict 2 | Conflict 3 | Conflict 4 RV |
|---------------|------------|------------|------------|---------------|
| Conflict 1 | 1.000 | .667 | .558 | .151 |
| Conflict 2 | .667 | 1.000 | .722 | .149 |
| Conflict 3 | .558 | .722 | 1.000 | .208 |
| Conflict 4 RV | .151 | .149 | .208 | 1.000 |

Table 87: Item-Total Statistics of Conflict (Condition two)

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|

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| | | | | | |
|---------------|--------|--------|------|------|------|
| Conflict 1 | 7.2908 | 9.059 | .594 | .459 | .608 |
| Conflict 2 | 7.7143 | 10.277 | .695 | .623 | .555 |
| Conflict 3 | 7.9031 | 10.980 | .663 | .541 | .585 |
| Conflict 4 RV | 6.7092 | 13.715 | .191 | .046 | .834 |

Complete Sample

The reliability analysis (Table 87) shows that the items/sub-scale has (by psychometric standards and rule of thumb) an acceptable internal consistency, ($\alpha = .747$) (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 88: Cronbach's alpha for Conflict

| (Complete Sample) | | |
|-------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .747 | .747 | 4 |

The sub-scale descriptives are ($M = 9.96$, $SD = 4.44$). When exploring Table 89, it is evident that most items correlate with each other moderately, the items that have the lowest correlation are items three and four. When examining Table 90 one can conclude that if item four were deleted then Cronbach' alpha would increase to a good internal consistency ($\alpha = .867$); none of the other items would increase Cronbach's alpha if deleted.

Table 89: Inter-Item Correlation Matrix of Conflict (Complete Study)

| | Conflict 1 | Conflict 2 | Conflict 3 | Conflict 4 RV |
|---------------|------------|------------|------------|---------------|
| Conflict 1 | 1.000 | .723 | .622 | .193 |
| Conflict 2 | .723 | 1.000 | .741 | .139 |
| Conflict 3 | .622 | .741 | 1.000 | .131 |
| Conflict 4 RV | .193 | .139 | .131 | 1.000 |

Table 90: Item-Total Statistics of Conflict (Complete Study)

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| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Conflict 1 | 7.4094 | 9.860 | .683 | .547 | .599 |
| Conflict 2 | 7.7323 | 10.997 | .730 | .661 | .584 |
| Conflict 3 | 7.8563 | 11.599 | .663 | .565 | .625 |
| Conflict 4 RV | 6.8898 | 15.664 | .176 | .037 | .867 |

4.1.2.9 Social desirability

Condition one

The Social Desirability sub-scale contained five items. These items were not designed for internal consistency but rather to achieve a distribution whereby participants who consistently respond to these items extremely positively are likely to be responding in a highly socially desirable manner. Therefore although a reliability analyses on this sub-scale is useful, a low reliability does not necessarily indicate that the sub-scale is unusable. The reliability analysis (Table 91) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .561$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 91: Cronbach's alpha of Social desirability

| (Condition one) | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .561 | .553 | 5 |

The sub-scale descriptive are ($M = 17.68$, $SD = 5.18$). When looking at Table 92 one is able to note that the items that correlate lowest with each other are items three and five. Through examining Table 93 one can see that deleting item five would increase Cronbach's alpha ($\alpha = .583$) if deleted. None of the other items would increase alpha if deleted.

Table 92: Inter-Item Correlation Matrix of Social Desirability (Condition one)

| Social Desirability | Social Desirability | Social Desirability | Social Desirability | Social Desirability |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| 1 RV | 2 | 3 | 4 | 5 RV |

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| | | | | | |
|--------------------------|-------|-------|-------|-------|-------|
| Social Desirability 1 RV | 1.000 | .147 | .166 | .223 | .174 |
| Social Desirability 2 | .147 | 1.000 | .319 | .320 | .131 |
| Social Desirability 3 | .166 | .319 | 1.000 | .369 | .029 |
| Social Desirability 4 | .223 | .320 | .369 | 1.000 | .108 |
| Social Desirability 5 RV | .174 | .131 | .029 | .108 | 1.000 |

Table 93: Item-Total Statistics of Social Desirability (Condition one)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--------------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Social Desirability 1 RV | 14.7781 | 20.160 | .272 | .083 | .533 |
| Social Desirability 2 | 13.3826 | 17.747 | .378 | .161 | .470 |
| Social Desirability 3 | 13.9743 | 17.212 | .367 | .188 | .478 |
| Social Desirability 4 | 13.3376 | 17.747 | .431 | .204 | .441 |
| Social Desirability 5 RV | 15.2669 | 22.403 | .161 | .045 | .583 |

Condition two

The reliability analysis (Table 94) shows that the items/sub-scale has (by psychometric standards and rule of thumb) apoor internal consistency, $\alpha = .524$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 94: Cronbach's alpha for Social Desirability (Condition two)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .524 | .521 | 5 |

The sub-scale descriptive are ($M = 15.83$, $SD = 4.91$). When exploring Table 95, it is evident that most items correlate with each other moderately to poorly, the items that have the lowest correlation are items one and four. When examining Table 96 one can conclude that if item four were deleted then Cronbach' alpha would increase ($\alpha = .543$) and if item five were deleted then Cronbach' alpha would increase ($\alpha = .534$). None of the other items would increase Cronbach's alpha if deleted.

Table 95: Inter-Item Correlation Matrix of Social Desirability (Condition two)

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| | Social Desirability 1 RV | Social Desirability 2 | Social Desirability 3 | Social Desirability 4 | Social Desirability 5 RV |
|--------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------------|
| Social Desirability 1 RV | 1.000 | .304 | .344 | -.024 | .356 |
| Social Desirability 2 | .304 | 1.000 | .209 | .157 | .158 |
| Social Desirability 3 | .344 | .209 | 1.000 | .343 | .036 |
| Social Desirability 4 | -.024 | .157 | .343 | 1.000 | -.096 |
| Social Desirability 5 RV | .356 | .158 | .036 | -.096 | 1.000 |

Table 96: Item-Total Statistics of Social Desirability (Condition two)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| Social Desirability 1 RV | 13.1538 | 16.749 | .395 | .289 | .407 |
| Social Desirability 2 | 12.4103 | 16.140 | .336 | .127 | .438 |
| Social Desirability 3 | 12.5897 | 14.893 | .405 | .248 | .386 |
| Social Desirability 4 | 11.6718 | 18.211 | .175 | .161 | .543 |
| Social Desirability 5 RV | 13.4974 | 20.313 | .160 | .144 | .534 |

Complete Sample

The reliability analysis (Table 97) shows that the items/sub-scale has (by psychometric standards and rule of thumb) a poor internal consistency, $\alpha = .557$ (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994).

Table 97: Cronbach's alpha for Social Desirability

| (Complete Sample) | | |
|---------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .557 | .548 | 5 |

The sub-scale descriptive are ($M = 16.97$, $SD = 5.15$). When exploring Table 98, it is evident that most items correlate with each other moderately to poorly, the items that have the lowest correlation are items three, four and five. When examining Table 99 one can conclude that if item five were deleted then Cronbach' alpha would increase ($\alpha = .576$).

Table 98: Inter-Item Correlation Matrix of Social Desirability (Complete Sample)

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| | Social Desirability 1 RV | Social Desirability 2 | Social Desirability 3 | Social Desirability 4 | Social Desirability 5 RV |
|--------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|
| Social Desirability 1 RV | 1.000 | .214 | .236 | .131 | .239 |
| Social Desirability 2 | .214 | 1.000 | .297 | .261 | .143 |
| Social Desirability 3 | .236 | .297 | 1.000 | .362 | .035 |
| Social Desirability 4 | .131 | .261 | .362 | 1.000 | .032 |
| Social Desirability 5 RV | .239 | .143 | .035 | .032 | 1.000 |

Table 99: Item-Total Statistics of Social Desirability (Complete Sample)

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--------------------------|-------------------------------|-----------------------------------|---|------------------------------------|--|
| Social Desirability 1 RV | 14.1522 | 19.436 | .322 | .124 | .500 |
| Social Desirability 2 | 13.0079 | 17.319 | .377 | .145 | .464 |
| Social Desirability 3 | 13.4407 | 16.742 | .392 | .200 | .453 |
| Social Desirability 4 | 12.6957 | 18.549 | .332 | .157 | .493 |
| Social Desirability 5 RV | 14.5850 | 22.299 | .163 | .068 | .576 |

4.1.2.10 Conclusion: Reliability analysis

Most of the 42 scale items demonstrated no increase in alpha if deleted and therefore removing any of these items would not make a significant difference to the overall alpha of the scales.

However in condition one seven items showed an increase in alpha if deleted, these were, Group differentiation 1, as alpha would have increased to $\alpha = 0.652$; Out-group Homogeneity 1, as alpha would have increased to $\alpha = .728$; In-group Identification 1, as alpha would have increased to $\alpha = .667$; Legitimacy 4 RV⁴, as alpha would have increased to $\alpha = .733$; Stability 6,

⁴ RV Denotes a reverse phrased item that was reverse scored for analysis.

as alpha would have increased to $\alpha = .639$; Conflict 4 RV, as alpha would have increased to $\alpha = .885$; Social Desirability 5, as alpha would have increased to $\alpha = .583$. A total of 5 items in condition two showed an increase in alpha if deleted, these were, Group differentiation 1, as alpha would have increased to $\alpha = .751$; Legitimacy 4 RV, as alpha would have increased to $\alpha = .685$; Conflict 4 RV, as alpha would have increased to $\alpha = .834$; Social Desirability 4, as alpha would have increased to $\alpha = .543$ and Social Desirability 5 as alpha would increase to ($\alpha = .534$). Finally a total of 5 items in the complete sample showed an increase in alpha if deleted, these were, Group differentiation 1, as alpha would have increased to $\alpha = .696$; Legitimacy 4 RV, as alpha would have increased to $\alpha = .743$; Stability 6, as alpha would have increased to $\alpha = .631$; Conflict 4 RV, as alpha would have increased to $\alpha = .867$ and Social Desirability 5 as alpha would increase to $\alpha = .576$.

Although these items also had poor correlations these correlations were not low enough to necessitate dropping the items; the correlations did serve to flag these items for further exploration using Factor Analysis. This brings to an end the results of Phase one: Descriptive and Reliability analysis. The results of Phase two: Exploratory Factor Analysis will now be examined.

4.2. Phase two: Factor Analysis

In order to assess the independence of the underlying dimensions of the scale items a Factor analysis was conducted (Loewenthal, 2002). The Confirmatory Factor analysis was conducted on the combined data set (that comprised of all the data from conditions one and two).

4.2.1. Factor analysis: Combined data set (Condition one and Condition two)

4.2.1.1 Analysing Assumptions

In order to conduct a Factor analysis the data must meet the assumption of sphericity or homogeneity of variance, namely, the assumption that population the sample groups were drawn from are roughly similarly distributed or whether it can be assumed that the scale items are uncorrelated in the population (Field, 2005). In order to determine the assumptions and sampling adequacy for factor analysis Bartlett's test of Sphericity and the Kaiser-Meyer-Olkin (KMO) a test or measure of sampling adequacy were conducted on the data. Bartlett's test of sphericity returned a significant result ($p < 0.001$) which means that a factor analysis is appropriate. Generally the Kaiser-Meyer-Olkin (KMO) measure, of sampling adequacy varies between 0 and 1; and a value close to 1 indicates that the factor analysis should yield distinct and reliable factors (Field, 2005). The KMO statistic returned a result of 0.747, which is above the cut-off point of 0.5, meaning that the factor analysis should yield distinct and reliable factors (Field, 2005).

4.2.1.2 Type of Factor extraction

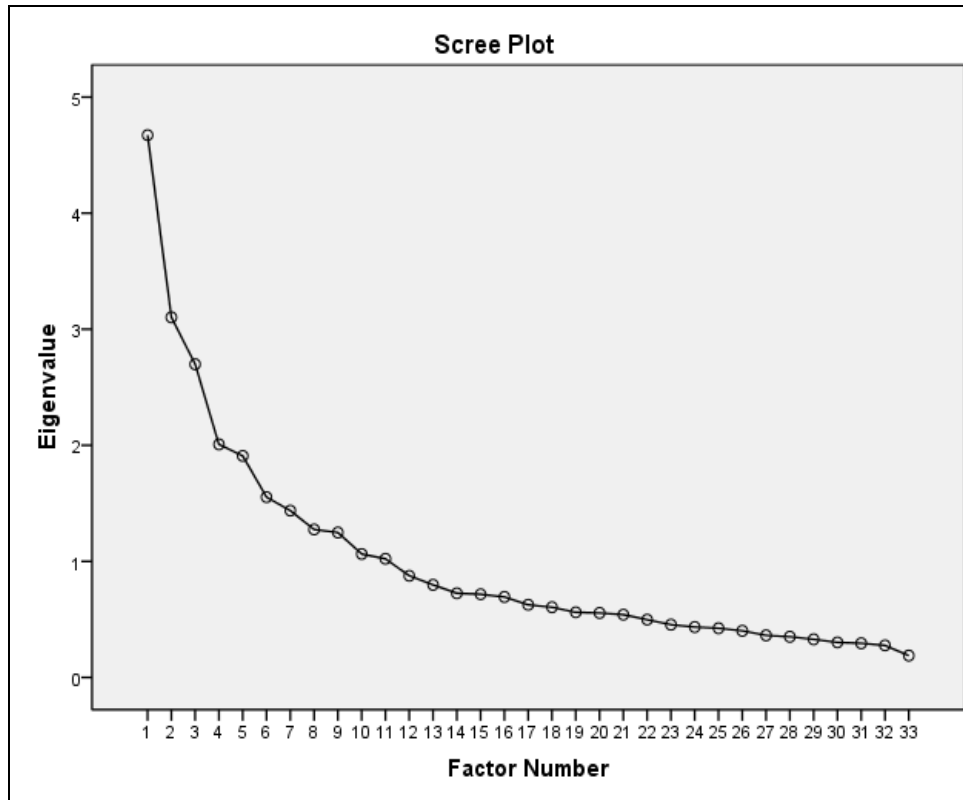
The most widely used factor extraction method in the social sciences is principal components analysis; however, it has been postulated that this is not necessarily the most appropriate method for all factor extractions (Fabrigar, Wegener, MacCallum & Strahan, 1999; Costello & Osborne, 2005). Fabrigar et al. (1999) argue that if data are relatively normally distributed, the maximum likelihood factor extraction method is a more appropriate choice as "it allows for the computation of a wide range of indexes of the goodness of fit of the model [and] permits statistical significance testing of factor loadings and correlations among factors and the computation of confidence intervals" (p. 277). Therefore, the maximum likelihood factor extraction method was employed in this factor analysis.

4.2.1.3 Number of Factors

As this was a confirmatory factor analysis the number of factors to be extracted were specified *a priori* based on the number of theoretical constructs which the study scale was attempting to measure. Costello and Osborne (2005) argue that it is most accurate to consider the scree plot when deciding how many factors to retain and if one considers the scree plot from the final

factor solution, (Figure 5), one can see that there is a small “shoulder” between factors nine and 10. This provides some justification confirming the *a priori* decision to extract nine factors.

Figure 5: Scree Plot for the combined data set (Condition one and two)



4.2.1.4 Rotation

The goal of factor rotation is to simplify and clarify the data structure (Costello & Osborne, 2005). Field (2005) argues that the choice of rotation depends on whether or not the underlying factors might be related, or are orthogonal to one another. Costello and Osborne (2005) state that “Orthogonal rotations produce factors that are uncorrelated; oblique methods allow the factors to correlate” (p.3). Conventional practice advises researchers to use orthogonal rotation as it produces more easily interpretable results (such as the varimax rotation which is commonly used). However, social sciences research generally expects some correlation among

factors, since behaviour is rarely partitioned into neatly packaged units that function independently of one another (Durrheim, 2002b). The factor rotation is to determine how much variance in a factor each item is accountable for and serves to make the interpretation of factor loadings easier. However, certain items may account for the variance in more than one factor and oblique methods take this into account by accommodating the correlation between items at the factor level (DeVellis, 2003).

The theoretical constructs which the scale was attempting to measure were known before the factor analysis was conducted and there is some theoretical explanation as to which constructs may be correlated. The measures incorporated into the inventory are, in-group/out-group closeness, in-group/out-group identification, group permeability, stability, legitimacy, conflict, differentiation and in-group/out-group homogeneity. These measures were included in the scale due to the great amount of empirical evidence which verifies that these various SIT socio-structural variables are regularly and concurrently used by most members of differing/varying groups (Ellemers, 1993; Brown, & Day, 2006; Mummendey et.al., 1999). Each socio-structural variable is understood as a single independent construct, but Tajfel (1970) argues “these dichotomies have value as analytical tools but they need not be taken too seriously;” as the majority of interaction “between human groups, large and small, reflect an intricate interdependence of social and psychological causation.” (p. 97). Therefore although the socio-structural variables within Social Identity Theory (SIT) can be understood as separate, independent constructs one must also be aware of the dialectical and interdependent nature of these variables (Tajfel, 1970). Hence one would expect some degree of correlation or connection between the socio-structural constructs. For example, groups that have low homogeneity are also likely to have lower differentiation; and groups with high intergroup conflict are also likely to have reduced permeability.

In conclusion, the use of an orthogonal rotation would result in a loss of valuable information if the factors were correlated in any way. Based on this it was deemed that the direct oblimin method of factor rotation would be most appropriate as an oblique rotation such as this, would take into account any correlations between factors and as such theoretically render a more

accurate, and therefore a more reproducible, solution (Costello & Osborne, 2005; DeVellis, 2003).

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4.2.1.5 Factor Loadings and labels

Table 100: Factor loadings >.3 for combined data set (Condition one and two)

| | Factor | | | | | | | | |
|----------------------------|--------|-------|------|------|------|-------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| In-group Identification 3 | .941 | | | | | | | | |
| In-group Identification 2 | .634 | | | | | | | | |
| In-group Identification 1 | .389 | | | | | | | | |
| In-group Identification 4 | .340 | | | | | | | | |
| In-group Identification 5 | .334 | | | | | | | | |
| Conflict 2 | | -.918 | | | | | | | |
| Conflict 3 | | -.822 | | | | | | | |
| Conflict 1 | | -.771 | | | | | | | |
| Legitimacy 2 | | | .849 | | | | | | |
| Legitimacy 1 | | | .663 | | | | | | |
| Legitimacy 3 RV | | | .572 | | | | | | |
| Out-group Homogeneity 3 | | | | .773 | | | | | |
| Out-group Homogeneity 4 | | | | .665 | | | | | |
| Out-group Homogeneity 2 | | | | .654 | | | | | |
| Out-group Homogeneity 1 | | | | .560 | | | | | |
| Stability 3 | | | | | .769 | | | | |
| Stability 1 | | | | | .769 | | | | |
| Stability 2 | | | | | .460 | | | | |
| In-group Homogeneity 2 | | | | | | -.785 | | | |
| In-group Homogeneity 3 | | | | | | -.624 | | | |
| In-group Homogeneity 4 | | | | | | -.508 | | | |
| In-group Homogeneity 1 | | | | | | -.461 | | | |
| Social Desirability 4 | | | | | | | .779 | | |
| Social Desirability 3 | | | | | | | .443 | | |
| Social Desirability 2 | | | | | | | .371 | | |
| Group Differentiation 3 | | | | | | | | .772 | |
| Group Differentiation 2 | | | | | | | | .674 | |
| Group Differentiation 4 RV | | | | | | | | .429 | |
| Group Differentiation 5 | | | | | | | | .340 | |
| Permeability 3 RV | | | | | | | | | .645 |
| Permeability 1 | | | | | | | | | .542 |
| Permeability 4 RV | | | | | | | | | .518 |
| Permeability 2 | | | | | | | | | .501 |

RELIABILITY AND VALIDITY OF A SOCIAL IDENTITY INVENTORY

Table 101: Factor Correlation Matrix of Complete dataset (Condition one and two)

| Factor | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| dimension 0 | 1 | 1.000 | -.019 | .027 | .187 | .265 | -.383 | .100 | .063 | .178 |
| | 2 | -.019 | 1.000 | -.007 | .098 | -.244 | .112 | -.134 | -.090 | -.112 |
| | 3 | .027 | -.007 | 1.000 | -.088 | .068 | -.103 | -.028 | .349 | .064 |
| | 4 | .187 | .098 | -.088 | 1.000 | .086 | -.258 | .156 | -.053 | .027 |
| | 5 | .265 | -.244 | .068 | .086 | 1.000 | -.268 | .112 | .070 | .195 |
| | 6 | -.383 | .112 | -.103 | -.258 | -.268 | 1.000 | -.011 | -.085 | -.039 |
| | 7 | .100 | -.134 | -.028 | .156 | .112 | -.011 | 1.000 | .083 | .152 |
| | 8 | .063 | -.090 | .349 | -.053 | .070 | -.085 | .083 | 1.000 | .200 |
| | 9 | .178 | -.112 | .064 | .027 | .195 | -.039 | .152 | .200 | 1.000 |

Table 100: Factor loadings >.3 for combined data set (Condition one and two) and Table 101: Factor Correlation Matrix of Complete dataset depict the factor loadings for the complete dataset (condition one and condition two) and will now be discussed. Costello and Osborne (2005) argue that only items with a factor loading of 0.30 or higher should be considered for inclusion in the final factor solution. Items which did not load onto any factors in the initial pattern matrix were dropped from the analysis and the analysis conducted again until a final solution was reached (ie. all remaining items loaded onto one of the nine factors). There were 8 items in the initial analysis which did not load onto any factors, these included: In-group Identification 6 RV, Social Desirability 5 RV, Stability 6, Stability 4, Legitimacy 4 RV, Stability 5 RV, Social Desirability 1 RV and Conflict 4 RV. Of interest is the fact that the majority of items which did not load onto any factors, bar two, were the reverse-coded items. In the second solution only one item (Group Differentiation 1) did not load onto any factors. In the third factor solution it was clear that each item left loaded independently onto theoretically coherent factors. The factor analysis thus left 33 items which loaded onto the nine theoretical constructs which the scale attempted to measure.

4.3.1 Recommendations for the best combinations of items for each scale

Within the reliability analysis in condition one, seven items showed an increase in alpha if deleted, these were, Group differentiation 1; Out-group Homogeneity 1; In-group Identification 1; Legitimacy 4 RV; Stability 6; Conflict 4; Social Desirability 5. A total of five items in condition two showed an increase in alpha if deleted, these were, Group differentiation 1; Legitimacy 4 RV; Conflict 4; Social Desirability 4 and Social Desirability 5. Finally a total of 5 items in the complete sample showed an increase in alpha if deleted, these were, Group differentiation 1; Legitimacy 4 RV; Stability 6; Conflict 4 and Social Desirability 5. When this is compared to the eight items that were dropped in the Factor analysis, namely, In-group Identification 6 RV, Social Desirability 5 RV, Stability 6, Stability 4, Legitimacy 4 RV, Stability 5 RV, Social Desirability 1 RV and Conflict 4 RV. One can conclude that the overall items that would improve the scale if deleted are Group differentiation 1, In-group Identification 6 RV, Stability 6, Stability 4, Legitimacy 4 RV, Stability 5 RV and Conflict 4 RV. See table 102 for a list of items that performed poorly in the reliability analyses and factor analysis.

Table 102: Items with low scores in the reliability analyses and Factor analysis

| Item | Improvement in Cronbach's alpha if dropped | | | Poor Factor Loadings |
|------------------------------|--|----------------------------------|-------------------------------|----------------------|
| | Condition 1 reliability analysis | Condition 2 reliability analysis | Combined reliability analysis | |
| Group differentiation 1 | X | X | X | X |
| Out-group Homogeneity 1 | X | | | |
| In-group Identification 1 | X | | | |
| In-group Identification 6 RV | | | | X |
| Legitimacy 4 RV | X | X | X | X |
| Stability 5 | | | | X |
| Stability 6 | X | | X | |
| Conflict 4 | X | X | X | X |
| Social Desirability 1 | | | | X |
| Social Desirability 4 | | X | | |
| Social Desirability 5 RV | X | X | X | X |

A reliability analysis will now be reported on (Table 103) for the complete sample in order to determine whether or not the removal of these items results in an increase in the alpha of the subscales.

Table 103: Cronbach's alpha of the recommended/adjusted 5 sub-scales (Complete Sample)

| Sub-scale | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items | Scale Items remaining |
|-------------------------|------------------|--|------------|-----------------------|
| Group differentiation | .694 | .698 | 4 | 2,3,4,5 |
| In-group Identification | .670 | .679 | 5 | 14,15,16,17,18 |
| Legitimacy | .743 | .751 | 3 | 20,21,22 |
| Stability | .726 | .724 | 3 | 24,25,26 |
| Conflict | .867 | .873 | 3 | 34,35,36 |

From the above table one can conclude that there was an increase in all most of the amended sub-scales indicating that the reliability of the sub-scales had increased. Group differentiation increased from a poor reliability ($\alpha = .552$) to a sufficient reliability ($\alpha = .694$); legitimacy increased from a poor reliability ($\alpha = .587$) to an acceptable reliability ($\alpha = .743$); stability increased from a sufficient reliability ($\alpha = .612$) to an acceptable reliability ($\alpha = .726$); conflict increased from an acceptable reliability ($\alpha = .721$) to a good reliability ($\alpha = .867$). However in-group identification decreased very slightly from ($\alpha = .684$) to ($\alpha = .670$). Refer to Appendix G for the recommended / adjusted scale.

4.4 Phase three: Hypothesis tests

As discussed previously Ellemers, Wilke and Van Knippenberg (1993) found that “(1) members of high status groups show more in-group identification than members of low status groups, (2) members of low status groups with permeable boundaries identify less with their group members of low status groups with impermeable boundaries and (3) in low status groups in-group identification decreases as group members have a higher individual ability.” (p. 497). Using these and other research findings (discussed previously) the following hypotheses can be derived (see also Doosje & Ellemers, 1997; Ellemers, 1993; Ashforth & Mael, 1989; Anastasi & Urbina, 1997; Brown, 2000; Tajfel, 1978; Fiske, Cuddy, Glick, Xu, 2002). :

Hypothesis one: Members of high status groups (males and postgraduates) will express greater in-group identification than members of low status groups (females and undergraduates).

Hypothesis two: Members of low status groups with permeable boundaries (undergraduates) identify less with their in-group than group members of low status groups with impermeable boundaries (Females) identify with their In-group.

Hypothesis three is: Group members who strongly identify with their in-group are more likely to accentuate in-group homogeneity, than group members who do not strongly identify with their in-group.

Furthermore, as mentioned earlier, there are a variety of reactions to a negative or poor social identity both at the level of the self and at a group level; however it is difficult to predict these reactions on the basis of status inequality alone (Ashforth & Mael, 1989; Anastasi & Urbina, 1997; Brown, 2000). For example if a low status group holds positive in-group attitudes and is confronted with an unfair or illegitimate status inequality this will often lead to revolutionary action for social, political and economic change (Tajfel, 1978; Fiske, Cuddy, Glick, Xu, 2002). But if a low status group does not hold positive in-group attitudes and is permeable then members of this group may attempt individual mobility, whereby members of the group seek to leave the group or dissociate themselves from the group (Brown, 2000).

From the above the final hypothesis was derived, specifically,

Hypothesis four: Female group members in condition one (a low status group with impermeable boundaries where the status hierarchy is illegitimate) will have greater levels of conflict than Undergraduate group members in condition two (a low status group with permeable boundaries where the status hierarchy is legitimate).

4.4.1 Results of the hypotheses tests:

Using T-tests hypotheses one and two were tested as follows:

Hypotheses one:

Members of high status groups (males and postgraduates) will express greater in-group identification than members of low status groups (females and undergraduates).

Table 104: Descriptive Statistics for Ingroup Identification Subscale (all conditions)

| Group membership | <i>n</i> | Mean | Standard Deviation |
|------------------|----------|--------|--------------------|
| Male | 107 | 4.8037 | 1.07352 |
| Female | 206 | 5.1235 | 1.05197 |
| Undergrad) | 112 | 4.6901 | 1.14851 |
| Postgrad | 85 | 4.6188 | 1.15784 |

Levene's test of homogeneity of variance was not violated ($F(508) = .386$, $p = 0.534$). The *t*-test confirmed that there was a significant difference in in-group identification between high and low status groups, $t(508) = -2.253$, $p = 0.025$.

This significant result indicates that the sub-scale was able to correctly replicate the theoretical predictions drawn from Social Identity Theory. As there were higher scores in the in-group identification sub-scale for the high status groups (males and postgraduates) and lower levels of in-group identification were witnessed for the low status groups (females and undergraduates). As mentioned in Chapter three: methodology, we can then conclude that the In-group identification sub-scale has good construct validity and that the scale items are congruent with the theory underpinning the construct. The sub-scale also has criterion validity and the in-group subscale scale measures differ as theoretically predicted according to certain criterion, for example, status inequalities.

Hypotheses two:

Members of low status groups with permeable boundaries (undergraduates) identify less with their in-group than group members of low status groups with impermeable boundaries (Females).

Table 105: Descriptive Statistics for Ingroup Identification Subscale (Female and Undergrad conditions)

| Group membership | <i>n</i> | Mean | Standard Deviation |
|------------------|----------|--------|--------------------|
| Female | 206 | 5.1235 | 1.05197 |
| Undergrad | 112 | 4.6901 | 1.14851 |

Levene's test of homogeneity of variance was not violated ($F(316) = 316$, $p = 0.314$). The t -test demonstrated that there was a significant difference in in-group identification between members of low status groups with permeable boundaries (undergraduates) and members of low status groups with impermeable boundaries (females), $t(316) = 4.034$, $p < 0.0001$.

This significant result indicates that the sub-scale was able to correctly replicate the theoretical predictions drawn from Social Identity Theory. As there were higher scores in the in-group identification sub-scale for the low status impermeable group (females) and lower levels of in-group identification were witnessed for the low status permeable group (undergraduates).

Hypothesis three

A multiple regression was used to test this hypothesis, specifically; group members who strongly identify with their in-group are more likely to accentuate in-group homogeneity, than group members who do not strongly identify with their in-group.

The objective of this multiple regression was to predict whether individuals who strongly identify with their group (as determined by their score on the In-group Identification subscale) are less likely to highlight any heterogeneity within their group (reflected by their score on the In-group homogeneity subscale), regardless of whether they are members of a high-status (postgraduates and males) or low-status group (undergraduates and females).

Firstly, it was important to establish that the assumption of multicollinearity was not violated. Multicollinearity occurs when a high correlation is identified between two or more predictor variables; if this assumption is violated then there may be a high degree of error when one attempts to draw inferences about the contribution of each predictor variable to the model (Howell, 2007). The assumption of multicollinearity was not violated, as there were no significant correlations between predictor variables. Furthermore, reported tolerance values calculated using SPSS ranged from 0.025 to 0.83 (see table 106, below). The closer to zero the lower the tolerance a variable has for collinearity, as none of the predictor variables had a tolerance level of less than 0.01 it was safe to proceed with the regression.

Table 106: Collinearity Tests of the Ingroup Identification Subscale

| Variable | Collinearity Statistics |
|---|-------------------------|
| | Tolerance |
| Ingroup Identification | .083 |
| Status | .039 |
| Status*Ingroup Identification Interaction | .025 |

A model predicting in-group homogeneity by In-group identification status and In-group identification * status was explored using the “enter” method. The model was significant, $F(3, 506) = 30.745$, $p < 0.0005$, adjusted R square = .149. In-group Identification was a significant predictor variable, $\beta = .444$, $p < 0.0005$, but neither status nor the interaction between status inequality and in-group Identification were significant.

R Square indicates the proportion of the variance in the dependent variable which is accounted for by the model; the adjusted R Square takes the number of variables in the model and the number of observations (participants) into account when calculating the model. Thus the adjusted R Square provides an indication of effect size or model fit and from this we can deduce that our model accounted for 15% of the variance in the scores achieved for in-group homogeneity. The beta value is a measure of how strongly each predictor variable influences the criterion variable, the higher the beta value the greater the impact of the predictor variable

on the dependent variable (in this case in-group Identification). From the beta values calculated it emerged that in-group identification had a fairly high impact on in-group homogeneity sub-scale. However, the status of the group to which participants belonged was not significant, and neither was the interaction between status and in-group identification variables. We can therefore conclude that regardless of the in-groups status, individuals who strongly identify with their group are more likely to accentuate in-group homogeneity, than individuals who do not strongly identify with their in-group.

The findings for the above three hypotheses serves as an indicator of the scales criterion validity. The sub-scale items are in fact congruent with the theory underpinning the construct, as the predictions are significant this indicates that the scale is able to predict reactions and draw meaningful conclusions in relation to the underlying scale constructs and participants performance on the scale (Loewenthal, 2002).

Hypothesis four:

Finally an independent samples T-test was used to test hypothesis four, specifically, Female group members in condition one (a low status group with impermeable boundaries where the status hierarchy is illegitimate) will have greater levels of conflict than the undergraduate group members in condition two (a low status group with permeable boundaries where the status difference is legitimate).

Table 107: Descriptive Statistics for Conflict Subscale (Female and Undergrad conditions)

| Group membership | <i>n</i> | Mean | Standard Deviation |
|------------------|----------|--------|--------------------|
| Female | 206 | 2.3545 | 1.36126 |
| Undergrad | 112 | 2.1471 | 1.17438 |

First the sample was filtered for low status participants only. Then a *t*-test was run comparing condition one with condition two on conflict. Levene's test of homogeneity of variance was not violated ($F(315) = .153, p = 0.696$). The *t*-test demonstrated that there was no significant difference in conflict between female group members in condition one (aka low status

impermeable groups with an illegitimate high status) and undergraduate group members in condition two (aka low status group members with permeable boundaries and legitimate status differences), $t(315) = .774$ $p = 0.439$.

This result was not significant and it is therefore not a good indicator of the scales criterion validity. The implications and possible reasons for this will be further explored in the discussion and conclusion chapter.

Chapter Five: Discussion and Conclusions

As mentioned in Chapter two, literature review, key research aims, the fundamental aim of this research study was to assess whether (or not) the items that have been developed and collated from international scales to measure key Social Identity Theory constructs and piloted in the South African tertiary education context, form reliable and valid measures. This research study thus aimed to partially validate and determine the reliability of a Social Identity Inventory in the South African tertiary education context. This discussion will therefore focus on the reliability and validity of the sub-scales.

5.1 Reliability

Reliability is an important aspect of scale research as reliability is the ability of a scale to consistently measure what the scale aims to measure (Loewenthal, 2002). Nunnally and Bernstein (1994) define reliability as “the proportion of variance attributable to the true score of the latent variable” (cited in DeVellis, 2003, p.27). This is especially important in psychological research when one attempts to measure theoretical constructs in a quantifiable or precise way; as unreliable measures can hinder the researchers ability to adequately apply or predict human behaviour in a useful or meaningful way (Loewenthal, 2002).

5.1.1 Internal consistency and inter-item total correlations of the sub-scales

The internal consistency of the scale is of primary importance to scale reliability (DeVellis, 2003). The reliability analysis of this scale demonstrated that there are reasonably high correlations between the sub-scale items, it is strongly indicative of the statistical probability that these variables are correctly or accurately measuring the same underlying theoretical construct (DeVellis, 2003). By conducting a reliability analysis the researcher is able to determine whether or not the scale items are strongly correlated to each other (DeVellis, 2003). This is important or significant because, as DeVellis (2003) argues “if items have a strong relationship to the latent variable they will have a strong relationship with each other” (p.28).

Furthermore if a scale measure is valid, the most important impact of low or marginal reliability is on power, where reduced reliability results in reduced power (DeVellis, 2003).

5.1.1.1 Reliability criteria

Reliability coefficients are the criteria with which one can judge reliability; stricter requirements are required for ability tests than for attitude or personality scales (Tredoux & Durrheim, 2005). In Psychological research due to the nature of the underlying constructs a goal of .7 is often seen as reasonable/acceptable (DeVellis, 2003; Field, 2005; Loewenthal, 2002; Nunnally & Bernstein, 1994). However, Loewenthal (2002) argues that if “there is good evidence for validity, there are good theoretical and/or practical reasons for the scale and, the scale is short (less than 10 items)” then one can consider using a lower coefficient of around 0.6 (p.60).

The unpredictability of reverse phrased items

Reverse phrased items are an important feature of most self-report scales, however as this study has shown these items do introduce a layer of complexity when these items are given to second language English speakers. The sub-scales with a consistently acceptable reliability were: in-group homogeneity (with a reliability of $\alpha = .743$ for the complete sample, $\alpha = .717$ in condition one and $\alpha = .780$ in condition two), and out-group homogeneity (with a reliability of $\alpha = .769$ for the complete sample, $\alpha = .717$ in condition one and $\alpha = .812$ in condition two). These sub-scales did not have any reverse phrased items. Although reverse phrased items are intended to increase the validity of a scale by preventing or detecting response sets; the lack of reverse-coded items in this scale may have worked in favour of the scales reliability. This may be due to the fact that reverse phrased items may have introduced additional complications for second language English speakers or a large proportion of the sample were either bilingual or isiZulu speakers.

Further examples of the role of reverse phrased items can be seen within the conflict sub-scale, although the scale had an acceptable reliability (with a reliability of $\alpha = .747$ for the complete sample, $\alpha = .763$ in condition one and $\alpha = .721$ in condition two), this reliability increased to a good reliability if the only reverse phrased item(item 4) was deleted (with a reliability of $\alpha = .867$ for the complete sample, $\alpha = .885$ in condition one and $\alpha = .834$ in condition two).

Similarly the legitimacy sub-scale showed an increase from a poor alpha (with a reliability of $\alpha = .587$ for the complete sample, $\alpha = .531$ in condition one and $\alpha = .589$ in condition two) to a sufficient to acceptable alpha if the reverse phrased item 4 was deleted (with a reliability of $\alpha = .743$ for the complete sample, $\alpha = .733$ in condition one and $\alpha = .685$ in condition two).

Sub-scales variation between conditions

The only sub-scale to show a clear variation was permeability. The permeability sub-scale had varying reliabilities between the conditions and with the entire sample (with a reliability of $\alpha = .658$ for the complete sample, $\alpha = .705$ in condition one and $\alpha = .569$ in condition two). As mentioned earlier this could be due to the different study conditions as condition one was selected for its impermeable nature and condition two was selected for its permeable group boundaries and this seems to have been reflected in the reliability analysis.

Adjusted scale items

As some items clearly indicated a poor reliability these items were dropped from the scale in order to improve the scales overall reliability (refer to Appendix G for the adjusted scale). After these items were dropped from the factor analysis and the sub-scales were adjusted based on the reliability analysis the group differentiation sub-scale's reliability increased from poor (with a reliability of $\alpha = .552$ for the complete sample, $\alpha = .564$ in condition one and $\alpha = .593$ in condition two) to sufficient / acceptable (with a reliability of $\alpha = .696$ for the complete sample, $\alpha = .652$ in condition one and $\alpha = .751$ in condition two). The other items (In-group Identification 6 RV, Stability 6, Stability 4, Legitimacy 4 RV, Stability 5 RV and Conflict 4 RV) also increased the scales reliability. Thus every sub-scale that had been amended now has at the very least a sufficient reliability. However as mentioned earlier although a reliability analyses on this sub-scale is useful, a low reliability does not necessarily indicate that the sub-

scale is unusable. As the social desirability items were not designed for internal consistency but rather to achieve a distribution whereby participants who consistently respond to these items extremely positively are likely to be responding in a highly socially desirable manner (Hays, Hayashi & Stewart, 1989).

Other forms of reliability

Due to time constraints and budgetary limitations this study does not assess test-retest reliability (discussed in chapter two: literature review), split-half reliability or alternate forms reliability. Having these forms of reliability would definitely strengthen the argument for the overall reliability of the scale and the lack of these forms of reliability does negatively impact upon the scale. Therefore it would be advisable to conduct these forms of reliability in future research studies. In the current study the scale was administered in two study conditions and then compared between the different conditions in an attempt to assess the reliability of the scale in differing conditions. From these comparisons it was clear that the reliability remained relatively constant except for the permeability scale which as discussed was expected.

Additional factors that affect reliability:

1. The number of items in the scale: each sub-scale had less than 10 items and in some cases the reliability of the sub-scales increased when items were removed from the sub-scales. However, the inventory was designed to allow virtually the full spectrum of key social identity variables to be measured with the minimum number of items, so this was a necessary trade-off.
2. The variability of the sample: The study sample did not have a great degree of variability and was rather homogenous, however this served the purposes of the study as the study aimed to partially validate and determine the reliability of a Social Identity Inventory specifically in the South African tertiary education context. However future research should aim to administer this test to a sample with greater variability in order to better determine the reliability of the scale within a wider population.

3. Extraneous variables: As discussed earlier, the reverse phrased items may have unintentionally impeded the reliability of the sub-scale. However all the measures included in this scale were tested previously and piloted by Quayle (2009).

5.2 Validity

Validity is present when a test or scale that actually measures what aims to measure (Loewenthal, 2002). This understanding of validity points to the fundamental importance of validity with regard to scale construction. Thus, the key forms of validity and issues concerning validity that relate directly to the research study will now be discussed.

Construct / Substantive validity

As mentioned earlier, construct validation is achieved when the constructs being measured are entrenched in a theoretical network of predicted relations among hypothetical constructs and observable criteria (Simms, 2008). Therefore construct (substantive) validity requires that a thorough review of the relevant literature be conducted in order to better conceptualise the various constructs under inquiry (Simms, 2008).

In terms of construct validity the items in this scale were sourced from a thorough literature review that was conducted during the period of 2008 -2010 by Quayle (2009). Once the items were sourced and modified for the South African context these items were then piloted and tested in two studies in 2008 (Quayle, 2009). Furthermore the language, grammar and simplicity of the scale items was of fundamental concern when designing the scale, as mistakes or inaccuracies could interfere with the overall reliability and validity of the measure (Simms, 2008). Therefore the scale items were phrased using simple language and did not use colloquial terms; some of the items are reverse coded in order to avoid response sets; and non-pejorative terminology was used (Simms, 2008). However, the reverse phrased items may have unintentionally introduced additional complexity for second language speakers.

Content and Face Validity

Loewenthal (2002) defines content and face validity as being present “when the items are about what you are measuring, and face validity is present when the items appear to be about what you are measuring (p.16)”. From the pilots and studies in 2008 as well as this study the scale items seem to have good content and face validity (Quayle, 2009).

Concurrent validity, predictive validity and criterion validity

Concurrent validity is the degree to which the items relate simultaneously to other measures of the underlying construct (Loewenthal, 2002). Correlations between existing or old tests and the current test are a good indicator of concurrent validity. Predictive validity is present when the test being administered is able to predict future performance or action based on the participants' current performance on the test (Loewenthal, 2002). Loewenthal (2002) defines criterion validity as being “present when measures on the test differ as predicted according to some criterion” for example members of different social groups may respond differently on the same scale (p.17). The different study conditions (salient sex identity and salient student identity) were compared to each other and hence served as a measure of the scales concurrent validity. The four hypotheses outlined in Chapter two: Literature review, were also used to partially validate the scale items.

To recap the hypotheses were as follows:

Hypothesis one: Members of high status groups (males and postgraduates) will express greater in-group identification than members of low status groups (females and undergraduates).

Hypothesis two is: Members of low status groups with permeable boundaries (undergraduates) identify less with their in-group than group members of low status groups with impermeable boundaries (Females).

Hypothesis three is: Group members who strongly identify with their in-group are more likely to accentuate in-group homogeneity, than group members who do not strongly identify with their in-group.

Hypothesis four: Female group members in condition one (aka low status impermeable groups with an illegitimate high status) will have greater levels of conflict than Undergraduate group members in condition two (aka low status group members with permeable boundaries and legitimate status differences).

The hypothesis tests confirmed that, in accordance with theoretical predictions from SIT there were significant relationships between: (1) in-group identification and group status; (2) permeability, status and in-group identification; (3) in-group identification and in-group homogeneity. However, a fourth and more complex hypothesis, namely that low status group members in groups with low legitimacy would express more conflict than members of low status groups with high legitimacy, was not confirmed. The successful hypothesis tests show that the in-group/out-group identification, status, permeability, and in-group/out-group homogeneity sub-scales were able to correctly replicate the theoretical predictions that were drawn from Social Identity Theory. These findings are useful indicators of the construct, concurrent, predictive and criterion validity of these subscales.

An exploration of the non-significant result

However the result for the fourth hypothesis was not significant and this result may be due to the actual items used to measure conflict, these items were adapted from Tropp's (2003) "Emotional states in intergroup contexts" scale which, in turn, had been adapted from Zuckerman and Lubin (1965, as cited in Tropp, 2003), Spielberger, Gorsuch, and Lushene (1970, as cited in Tropp, 2003), and Stephan and Stephan (1985, 1992, as cited in Tropp, 2003) (Quayle, 2009). An additional four items were designed by Quayle (2009). The conflict sub-scale has an acceptable reliability and therefore this result could be due to the hypothesis testing conflict as an action rather than an emotion and the scale measuring conflict as an emotional state. SIT defines conflict as the degree to which inter-group relationships or associations are

perceived or seen to be unfriendly, antagonistic or alternatively supportive and accommodating (Tajfel, 1986). This definition indicates that these items may need to be adapted to include both emotional and action based aspects of conflict; as this may improve the predictive validity of the sub-scale. Another possible reason for this result could be the smaller sample size that was being tested as the hypothesis required only the low status groups be used. However, the non significance could indicate that one or more of the scales lack validity, the study lacks power, or this specific theoretical prediction was not relevant to the specific social situation in the local South African tertiary context for some unforeseen reason.

Construct validity

Construct validity can be determined through conducting correlations with the other similar scale measures (Kaplan & Saccuzzo, 2005). These correlations are vital because if the constructs are consistent with the Social Identity Theory underpinning the construct, this then upholds the construct validity of the scale (Campbell & Fiske, 1959). This study did not examine the external validity of the scale measure and this greatly impacts the ability to examine the validity of the scale. Perhaps future research could explore the external validity of the scale.

5.3 Conclusion

Since its inception over 30 years ago Social Identity Theory's (SIT) contribution to the study of social identity and powerful explanations of psychological and group phenomena have been endorsed repeatedly through numerous laboratory experiments (to cite a few Tajfel, 1978; Tajfel, 1982; Turner, & Oakes, 1997; Oakes, Haslam, & Turner, 1994; Ellmers, Spears & Doosje, 2002; Hogg & Cooper, 2007). However these "studies have only included parts of the SIT model (e.g. concentrated on one aspect of socio-structural characteristics)" (Mummendey, Klink, Mielke, Wenzel & Blanz, 1999, p.262). Thus there is still a shortage of internationally and locally validated scales and measures for most of the key SIT constructs. This research study thus aimed to address this issue of contention within SIT, by attempting to construct a reliable and valid measure of fundamental SIT constructs using naturally occurring groups within the tertiary education context.

Based on these results, the Social Identity Inventory has a reasonable reliability and there are some indications of validity. However additional research is needed to further explore the reliability and validity of the scale using a more representative sample of the general population with the recommended final versions of the scales.

DeVellis (2003) argues that within the social sciences and specifically within psychology researchers often endeavour to measure “elusive, intangible phenomena derived from multiple, evolving theories [this] poses a clear challenge to social science researchers. Therefore, it is especially important to be mindful of measurement procedures and recognize fully their strengths and shortcomings” (p.7). Although the adjusted sub-scales did show an increased reliability, as the procedure of dropping items to increase reliability did serve to maximize the reliability for the current dataset, this may not necessarily transfer to other samples. The adjusted scale therefore needs to be tested further (refer to Appendix G, recommended / adjusted scale). It is therefore suggested that further research is conducted using this scale in order to improve the reliability analysis, specifically the test-retest reliability, split half reliability and alternate forms reliability. Future research should also seek to improve and further examine the external validity of this measure through administering the scale to a larger sample that is more representative of the general population as well as using different naturally occurring groups such as racial groups, age groups, groups based on marital status (to name a few).

To wrap up, a reliability analysis conducted on the scale identified poorly performing items, which could then be dropped in order to determine the best combination of items. A confirmatory factor analysis was then performed in order to determine that scale items loaded onto coherent factors, which returned a favourable result as theoretically correlated items generally loaded onto the same factor as each other. Finally four hypotheses based on SIT literature were tested to partially test construct validity for those subscales which could be tested in a simple and clearly defined manner. Three of the hypotheses were significant

providing a strong argument that the sub-scales were able to replicate the theoretical predictions drawn from Social Identity Theory literature. The fact that early tests of the scale's performance returned generally favourable results in predicted directions, in hand with the encouraging results returned by the reliability and factor analysis, creates a strong case for further research to cement the validity and reliability of the scale under study. Once this has been done, one can go about generating norms for the current context, and thus if the scale is able to consistently measure multiple SIT variables in different contexts. It is therefore hoped that this research study will add to the existing body of knowledge regarding the scale measurement of key variables of SIT locally in the South African tertiary context. Further research could build on the foundation of this study and conduct a contextual and quantitative exploration of this psychological phenomenon.

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