

**Examining the effect of status on the emergence  
of ethnocentrism and selfishness under equal  
and unequal conditions in a minimal group  
setting using the Virtual Interaction  
Application (VIAPPL)**

Natasha Gillespie

University of KwaZulu-Natal

College of Humanities

School of Applied Human Sciences

Psychology Department

Pietermaritzburg

2016

MASTERS THESIS

## Abstract

**Background:** Inequality emphasizes the distinction between *us* and *them* which forms the basis for ethnocentrism.

**Aim:** The aim of the study was to examine the effect of status on the emergence of ethnocentrism and selfishness using a minimal group situation under equal and unequal conditions.

**Methodology:** The study used a mixed experimental design. A sample of 224 students from the University of KwaZulu-Natal was recruited using non-probability sampling. The effect of status on the production of ethnocentric and selfish behaviour among low, equal and high status participants was investigated using the Virtual Interaction Application's (VIAPPL) give-and-get token exchange game. The effect of interaction on ingroup identity, the legitimacy and stability of the experimental situation and sense of competition was measured using a pre- and post-test questionnaire. The VIAPPL data was analysed using generalised linear models. The psychometric data was analysed using repeated measures analyses of variance.

**Results:** The VIAPPL data indicated that identity as a group member was the most important factor determining ethnocentric behaviour ( $F(1, 220)=34.74; p<0.001; \eta^2=0.14$ ). Low status participants exhibited significantly more ethnocentrism than high status participants ( $F(1, 108)=30.83; p<0.001; \eta^2=0.22$ ). Inequality significantly increased ethnocentric behaviour ( $F(1, 220)=4.20; p<0.04; \eta^2=0.02$ ). No significant differences in selfishness were found between low- and high status participants. Individuals demonstrated significantly more selfishness than group members ( $F(1, 220)=10.08; p<0.001; \eta^2=0.04$ ). The psychometric

data indicated that group members exhibited significantly greater ingroup identity ( $F(1, 215) = 9.29, p < 0.001, \eta^2 = 0.04$ ) following interaction. There were no significant differences in the legitimacy or stability of the experimental condition. The competition subscale was excluded due to poor reliability.

**Discussion/Conclusion:** Social identity theory's position that high status produces ethnocentrism was contradicted by the emergence of ethnocentrism among low status participants. However, this phenomenon has been observed where status differences are perceived as illegitimate or unstable. Generosity toward low status participants may also account for reduced ethnocentrism among high status participants. The finding that individuals exhibit greater selfishness than group members suggests that ethnocentrism emerges to serve the best interests of the group and is not simply a facet of individual selfishness.

**Keywords:** Ethnocentrism, Inequality, Minimal Group, Social Identity Theory, Selfishness, Status, Virtual Interaction Application, VIAPPL.

## **Acknowledgements**

Thank you Professor Kevin Durrheim, being a part of your VIAPPL team taught me invaluable research skills that assist me daily in my work as a young researcher.

Thank you to my mentors, Dr. Heidi van Rooyen, Dr. Alastair van Heerden, Dr. Zaynab Essack and Mr. Phillip Joseph, at the Human Sciences Research Council for giving me the time and support I needed to complete my thesis.

Thank you to my family and JC †

Thank you to my examiners for your careful consideration of my thesis and for awarding me a first class pass ☺

Although this research was conducted using funds awarded by the National Research Foundation the findings and conclusions stated in this thesis are the author's and may not necessarily represent the opinions of the National Research Foundation.

## **Declaration**

Submitted in partial fulfilment of the requirements for the degree of Master of Social Science (Research Psychology), in the Discipline of Psychology, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

I, Natasha Gillespie declare that

1. The research reported in this thesis, except where otherwise indicated, is my original research.
2. This thesis has not been submitted for any degree or examination at any other university.
3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
4. This thesis does not contain other person's writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
  - a. Their words have been re-written but the general information attributed to them has been referenced.
  - b. Where their exact words have been used, then their writing has been placed in italics and inside quotation marks, and referenced.

5. This thesis does not contain text, graphics or tables copied and pasted from the internet, unless specifically acknowledged, and the source being detailed in the thesis and in the References section.

Miss Natasha Gillespie

Student Name

November 2016

Date

Professor Kevin Durrheim

Name of Supervisor

---

Signature

## Contents

Abstract.....	2
Acknowledgements.....	3
Declaration.....	4
List of Tables .....	9
List of Figures.....	10
Chapter 1: Introduction.....	11
<i>The Focus of this Dissertation</i> .....	11
<i>The Organisation of this Dissertation</i> .....	13
Chapter 2: Literature Review .....	14
<i>The Evolution of Ethnocentrism</i> .....	14
<i>Early Ethnocentrism</i> .....	14
<i>Abandoning the need for outgroup discrimination in ethnocentrism</i> .....	19
<i>The Consequences of Inequality and the Effect of Status on the Production of Ethnocentrism</i> ...	25
<i>My original contribution to the existing body of literature and conclusion</i> .....	29
Chapter 3: Aims, Rationale and Hypotheses .....	33
<i>Aims</i> .....	33
<i>Rationale</i> .....	33
<i>Research Questions, Hypotheses and Predictions</i> .....	33
Chapter 4: Methodology .....	35
<i>Virtual Interaction Application (VIAPPL)</i> .....	35
<i>VIAPPL Structure</i> .....	35
<i>Research Design</i> .....	39
<i>Experimental condition cells</i> .....	40
<i>Ingroup Identification</i> .....	42
<i>Legitimacy</i> .....	43
<i>Stability</i> .....	43
<i>Competition</i> .....	44
<i>Validity, Reliability and Rigour</i> .....	45
<i>VIAPPL</i> .....	45
<i>Pre- and Post-test Questionnaire</i> .....	46

<i>Sample and Sampling Technique</i> .....	46
<i>Sample</i> .....	46
<i>Sampling Technique</i> .....	47
<i>Instruments</i> .....	48
<i>Data Collection Procedure</i> .....	49
<i>Data Analysis</i> .....	51
<i>VIAPPL Data</i> .....	51
<i>VIAPPL Data Management</i> .....	52
<i>Psychometric data</i> .....	53
<i>Data Management</i> .....	53
<i>Ethical Considerations</i> .....	54
<i>Social Value</i> .....	54
<i>Scientific validity</i> .....	54
<i>Fair subject selection</i> .....	55
<i>Favourable risk-benefit ratio</i> .....	55
<i>Independent review</i> .....	55
<i>Informed consent</i> .....	56
<i>Respect for enrolled subject</i> .....	57
Chapter 5: Results .....	58
<i>VIAPPL Data</i> .....	58
<i>Descriptive Statistics</i> .....	58
<i>Inferential Statistics</i> .....	60
<i>Psychometric Data</i> .....	71
<i>Ingroup Identification</i> .....	72
<i>Legitimacy</i> .....	75
<i>Stability</i> .....	76
Chapter 6: Discussion .....	78
<i>Group members are more ethnocentric than individuals</i> .....	78
<i>Ethnocentric Low Status Groups</i> .....	79
<i>Inequality Breeds Ethnocentrism</i> .....	80
<i>Selfishness is not a smart strategy in groups</i> .....	81
Chapter 7: Limitations .....	83
Chapter 8: Areas for further research .....	84



Chapter 9: Conclusion.....	85
References.....	86
Appendix 1.1: Pre- and Post-test Questionnaire (Individual Condition) .....	94
Appendix 1.2: Pre- and Post-test Questionnaire (Group Condition) .....	96
Appendix 2: Experiment Procedure and Script.....	98
Appendix 3: Informed Consent Form .....	103

## **List of Tables**

1. Status hypothesis
2. Selfishness hypothesis
3. Description of experimental condition cells
4. Description of the data collection procedure
5. Effects and interactions for individuals versus group members under equal and unequal experimental conditions
6. Token allocation means for individuals and group members
7. Token allocation means for the equality and inequality experimental conditions
8. Effects and interaction for individuals versus group members under low and high status experimental conditions
9. Token allocation means for individuals and group members included in the inequality experimental conditions
10. Mean tokens allocated by low status and high status participants
11. Mean ingroup identification scores for the pre-and post-test questionnaire
12. Pre- and post-test levels of ingroup identification for individuals versus group members
13. Pre- and post-test levels of ingroup identification for equal status and unequal status participants
14. Pre- and post-test levels of ingroup identification for low status and high status participants
15. Pre- and post-test levels of legitimacy for individuals versus group members?
16. Pre- and post-test levels of legitimacy for equal status and unequal status participants
17. Pre- and post-test levels of legitimacy for low status and high status participants
18. Pre- and post-test levels of stability for individuals versus group members

19. Pre- and post-test levels of stability for equal status and unequal status participants
20. Pre- and post-test levels of stability for low status and high status participants

### **List of Figures**

1. Blackburn's equal triangles
2. Grouping activity: Dot counting task
3. Game interface: Give-and-get token exchange game
4. Round moves screen
5. Percentage of female and male participants included in the sample
6. Racial distribution of participants included in the sample
7. Mean tokens allocated to the ingroup, outgroup and self by individuals versus group members for the equality and inequality experimental conditions
8. Mean tokens allocated to the ingroup, outgroup and self under equal versus unequal experimental conditions
9. Mean tokens allocated to the ingroup, outgroup and self by individuals versus group members included in the inequality experimental conditions
10. Mean tokens allocated to the ingroup, outgroup and self by low status versus high status participants
11. Levels of ingroup identification for individuals and group members at the pre- and post-test time points

## Chapter 1: Introduction

“All men are created equal” (US Declaration of Independence, Paragraph two, 1776) but we live in a world of inequality where there are great differences in wealth, status and power among people and societies. Blackburn (1999, p. 4) suggests that equality is not the opposite of inequality. Rather “there is a continuum of inequality, increasing from zero to infinity. Zero is defined as equality, while the rest of the range is inequality.” It could be argued that striving for equality is not actually fair because equality suppresses social diversity, creates sameness and leads to a rejection of difference (Blackburn, 1999). However, an argument for the rejection of equality based on these points is logically unsound because it equates equality with conformity. In contrast, a truly equal social system allows people to be different but still considered socially equal (Blackburn, 1999). However, Blackburn (1999) suggests that there is a strong link between inequality and difference. For instance, there is no logical reason why dark-skinned people should be socially disadvantaged in predominantly white societies and yet they are. Socially recognised differences create the distinction between *us* and *them* which forms the basis for ethnocentrism. The major problem associated with ethnocentrism is that ethnocentric people tend to view outgroups as homogenous which enhances stereotypes and affects the way ingroup and outgroup members interact.

### *The Focus of this Dissertation*

The focus of this dissertation is on the phenomenon of ethnocentrism, defined as “an attitudinal construct that involves a strong sense of ethnic group self-centredness and self-importance” (Bizumic, Duckitt, Popadic, Dru, & Krauss, 2009, p. 874). According to Bizumic et al. (2009, p. 874) there are two types of ethnocentrism: *intergroup* and *intragroup* ethnocentrism. Intergroup ethnocentrism involves the belief that your own ethnic group is superior to all other ethnic groups, whereas intragroup ethnocentrism involves the belief that

the group is more important than its individual members. Defining ethnocentrism as ethnic self-centredness rather than mere ingroup favouritism allows for a fuller examination of the constructs that drive people to exhibit ethnocentric behaviour while conceptually distinguishing ethnocentrism from outgroup hostility (xenophobia) (Hammond & Axelrod, 2006).

When ethnocentrism is expressed in its intergroup form ethnocentric people tend to favour their ingroup over outgroups, believe that their ingroup is greater than any outgroup, desire ethnic purity within the ingroup and accept the exploitation of outgroups when it is in the ingroup's interest to do so (Bizumic et al., 2009). Ethnocentrism in its intragroup form involves a devotion to the ingroup and the desire for group cohesion (Bizumic et al., 2009).

Given the huge inequalities that exist in the world, the effect of status on the emergence of ethnocentrism is an interesting research topic. For the purpose of this dissertation status is defined as social standing based on wealth as this provides a clear illustration of tangible differences between individuals and groups. It is acknowledged that status in social life does not only refer to differences in resources and that status differences can be found in groups where all members may have the same economic status (Lachenicht, 2016). For instance, in many social systems older people are often assigned higher status than children even if they do not have more money or resources (Lachenicht, 2016). Thus, if ethnocentrism is as natural and commonly occurring as researchers have suggested (Allport, 1962; Brewer, 1979; Hogg & Abrams, 1990; Jahoda & Krewer, 1997; McGee, 1900; Sumner, 1906; Tajfel & Turner, 1986) one wonders what happens in instances where the ingroup is clearly not superior and there are visible status differences between groups. Do low status groups simply not exhibit ethnocentric behaviour or do they attempt to assimilate into a higher status group? Perhaps,

under unequal circumstances, status differences are rejected or the high status of the outgroup is denied or attacked? Maybe the intragroup ethnocentrism principle tenet is rejected in favour of an individual selfishly attempting to gain superiority within the low status group? This dissertation will examine the effect of status on the emergence of ethnocentrism under conditions of equality and inequality in light of existing literature and the experiment conducted for the present study.

### *The Organisation of this Dissertation*

The remainder of this dissertation is organised as follows: Chapter two contains a critical review of literature on ethnocentrism. Chapter three lists the research aims, rationale and hypotheses. Chapter four details the methodology. The results are presented in chapter five and discussed in chapter six. Chapter seven notes the present study's limitation and suggests further areas of research to extend the study in chapter eight. The dissertation concludes with a summary of the main findings in chapter 9 followed by a list of references and appendices.

## Chapter 2: Literature Review

The chapter begins with a brief history on the evolution of ethnocentrism and then moves on to review literature on inequality, status and selfishness associated with ethnocentrism. The chapter concludes with an outline of the present study's contribution to the existing body of knowledge.

### *The Evolution of Ethnocentrism*

The concept of ethnocentrism was first introduced by Polish sociologist Ludwig Gumplowicz in 1881 although William Sumner, the American social scientist, has been widely credited for its early definition and popularization (Bizumic, 2014). Early definitions of ethnocentrism included an outgroup hostility component which was central to the development of influential theories such as realistic conflict theory (Sherif, 1966). Later definitions abandoned the need for outgroup hostility in favour of an emphasis on ingroup bias, this gave rise to social identity theory (Tajfel & Turner, 1986). Contemporary literature has further removed the negative connotations associated with the term bias by choosing to refer to ethnocentrism as ingroup favouritism derived from a sense of group self-centredness and self-importance (Bizumic, 2014). A brief description of key theories detailing the evolution of ethnocentrism will now be presented.

### *Early Ethnocentrism*

In its earliest form, written in German, ethnocentrism or “ethnocentrismus” was conceptualised as a grandiose “delusion” that humans have a subjective need to focus on their own ethnic group and place this group in a superior position to every other group (Bizumic, 2014, p. 4). In 1883, Gumplowicz (pp. 252-253) illustrated the early ethnocentric principles of *ingroup bias* and *outgroup derogation*:

So far most writing of history is dominated by limited ethnocentric viewpoints. . . .

One can comfortably say that the largest part of historical writing so far actually has only sprung from this subjective need of human beings to glorify their own and nearest and at the same time humiliate and sully what is foreign and distant.

Throughout Gumplowicz's writing at the end of the 19<sup>th</sup> century he identified many examples of ethnocentric perceptions across different nationalities. According to Gumplowicz, the Ancient Greeks displayed ethnocentrism in their description of all other groups as *barbarians* (Gumplowicz, 1887). Evidence of ethnocentric views were identified in the French, who believed that they were more civilised than everyone else (Gumplowicz, 1887), the Germans, due to Hegel's assertion that Germans were godlike, the Chinese, who stated their country was at the centre of the world and the Jews who believe that they are God's chosen people (Gumplowicz, 1895). Further, Gumplowicz recognised the close link between religion and ethnocentrism in his claim that many ethnic groups share religious beliefs that all humans are descendent from their group (Bizumic, 2014; Gumplowicz, 1881).

Gumplowicz's ethnocentrism also identified components of Sherif's realistic conflict theory when he suggested that conflicts between ethnic groups arise because of competing interests for economic or material resources (Bizumic, 2014). He proposed that hostility toward other groups may stem from group cohesion and devotion to the group (Bizumic, 2014).

In 1906, Sumner introduced the terms *ethnocentrism*, *ingroup* and *outgroup* to American academic literature in his influential book *Folkways*. Ethnocentrism was referred to as *ingroup bias* and defined as:



A view of things in which one's own group is the centre of everything, and all others are scaled and rated with reference to it... Each group nourishes its own pride and vanity, boasts itself superior, exalts its own divinities, and looks with contempt on outsiders. Each group thinks its own folkways the only right ones...ethnocentrism leads a people to exaggerate and intensify everything in their own folkways which is peculiar and which differentiates them from others. (Sumner, 1906, p. 13)

Sumner's theoretical conception of ethnocentrism was very similar to Gumpłowicz's in that one's own group was perceived as central and superior to other groups. Sumner proposed that ethnocentric behaviour stems from *folkways*, referring to appropriate ways of acting in particular contexts. Folkways are learnt through interaction, imitation and perpetuated over time until they are established as social norms (Sumner, 1906). He suggested that ingroup bias and outgroup discrimination exist simultaneously as pro-ingroup and anti-outgroup attitudes held by ethnocentric people.

Stemming from Sumner's work, Sherif (1937) illustrated how social norms are developed in his experiment on autokinetic movement. In this experiment participants were asked to judge the distance that a beam of light moved over a series of exposures. During the experiment the room was completely dark giving participants no objective cues to allow them to gauge the distance accurately. Participants acting as individuals established their own standard point and range of movement. However, those participating as group members conformed to the group standard, although at times with some resistance. When group members were asked to judge the distance as individuals they referenced the group norm and range. This experiment demonstrated the role of suggestion in the formation of attitudes and the power of groups in

prescribing normative behaviour.

Sherif's later work on ethnocentrism suggested that ethnocentric behaviour is triggered by real or perceived conflict between groups competing for scarce resources such as wealth status or power (Sherif, Harvey, White, Wood, & Sherif, 1961; Tajfel & Turner, 1979). The 1954 Robber's Cave experiment was fundamental in demonstrating how groups form and engage in ethnocentric behaviour (Sherif et al., 1961). In this experiment the researchers split 24 white boys of approximately 12 years old, from lower middle-class Protestant backgrounds into two groups. The experiment proved that bringing individuals together to interact in group activities leads to the development of a group structure with hierarchical status roles. Further, it showed that competition between groups could lead to intergroup conflict (Sherif et al., 1961). The findings also indicated that intergroup conflict may be eliminated through intergroup cooperation for the attainment of superordinate goals. A brief summary of the Robber's Cave experiment is presented below to illustrate Sherif's conception of ethnocentrism.

The Robbers Cave experiment was conducted over three stages. During the first stage participants established their ingroup through a series of cooperative activities that required discussion and planning to execute the activities successfully. Through these activities a hierarchical group structure was formed and group members took on different roles within the structure (Sherif et al., 1961). Group identity was further strengthened by the adoption of group names which gave group members a shared identity.

During the second stage, the researchers manipulated competitive attitudes between the groups which led to the participants claiming camp facilities such as the baseball pitch and

swimming hole as their own, for their exclusive use. Formal competitions between the groups were arranged by the researchers where there could only be a winning group and a losing group. Participation in these competitions led to an increase in outgroup discrimination through name-calling, refusal to share common spaces as well as theft and destruction of the other group's property. In addition, ingroup cooperation and cohesion appeared to be increased by the presence of an antagonistic outgroup (Sherif et al., 1961). For instance, during an ingroup swimming activity group members encouraged less able swimmers to participate and improve their swimming ability by providing support and encouragement.

In the final stage of the experiment, the researchers demonstrated that contrived contact activities, such as sharing a dining hall or watching a movie together was not enough to reduce hostility between groups. In fact, meaningless interaction appeared to increase antagonistic behaviour between groups. However, when groups were faced with a superordinate goal that was important to both groups but beyond the resources of a single group, cooperation between groups proved to eliminate the intergroup conflict. For instance, the researchers led the participants to believe that vandals had broken the water tanks that supplied drinking water to the camp and the participants needed to fix this problem. Working together members of both groups contributed to fixing the drinking water problem.

Following this positive and cooperative interaction, evidence of reduced conflict between groups was demonstrated by the members of one group allowing the other group to drink the water first. The generous group stated that the other group needed the water more because they had not brought water canisters with them. Unlike previous interactions, this gesture was not accompanied by any *ladies first* taunts. Following a series of additional cooperative intergroup activities the participants concluded the experiment by peacefully sharing the

dining hall, sharing prize money to purchase members of both groups drinks and electing to travel to their hometown on the same bus. However, it should be noted that the Robbers Cave experiment has been criticised for gender bias and that scholars have questioned whether similar experiments sampling girls might have produced the same results (Tyerman & Spencer, 1983).

Through the Robber Cave experiment and similar studies conducted by Sherif's team, realistic conflict theory was developed and provided an etiology for intergroup hostility that is driven by conflict over competition for scarce resources (Tajfel & Turner, 1979). In addition, Tajfel and Turner (1979) asserted that intragroup cohesiveness, morale and cooperation is enhanced by intergroup conflict and competition. In contrast, intergroup hostility and outgroup discrimination was shown to be reduced through intergroup cooperation (Campbell, 1965; Sherif, 1966; Sherif & Sherif, 1953; Sherif et al., 1961).

#### *Abandoning the need for outgroup discrimination in ethnocentrism*

Tajfel and Turner (1979) identified a key element of Sherif's research on ethnocentrism which appears to have been overlooked or regarded as an epiphenomenon of intergroup conflict. Unlike Sherif's version of ethnocentrism that suggested that ethnocentric behaviour is the result of intergroup conflict and competition, Tajfel proposed that *identifying* with a group was essential to elicit ethnocentric behaviour. Tajfel and Turner (1979) critiqued realistic conflict theory suggesting that the theory did not take into account the development and maintenance of group identity and its subsequent effects on ingroup and intergroup behaviour. According to Tajfel and Turner (1979) although intergroup conflict is sufficient for provoking ethnocentrism it is not a necessary condition. Rather the baseline condition necessary for producing ethnocentrism is categorization into ingroups and outgroups (Billig,

1976; Brewer, 1979; Diehl, 1990; Tajfel, Billig, Bundy, & Flament, 1971).

The classic social psychology minimal group situation experiments demonstrated that ingroup favouritism could be produced through minimal conditions (Tajfel, et al., 1971). A minimal group is defined by three fundamental characteristics (i) groups must have no history or should be created for the purpose the study, (ii) the criterion for differentiation should be arbitrary, and (iii) groups should have no face to face contact. These conditions are necessary in order to maintain the integrity of the experiment by ensuring that the presence of bias is not caused by pre-existing prejudice. In addition, criterion based differentiation, such as artistic preference or estimation ability, is included to foster a minimal sense of identification with the ingroup. Criterion based differentiation is important because Rabbie and Horwitz (1969) found that there was no significant difference in ingroup favouritism when participants were aware that they had been randomly categorised into groups. In reality, random assignment to groups is necessary to ensure that there is no systematic difference between groups which could account for the experiment's findings.

Psychological attachment to the group was essential in Tajfel and Turner's (1979) conception of the group and intra- and intergroup processes that produce ethnocentrism. Tajfel and Turner (1979, p. 40) defined a group as "a collection of individuals who perceive themselves to be members of the same social category, share some emotional involvement in this common definition of themselves, and achieve some degree of social consensus about the evaluation of their group and of their membership of it". Social categories are defined as "cognitive tools that segment, classify, and order the social environment, and thus enable the individual to undertake many forms of social action" (Tajfel & Turner, 1979, p. 40). Further, social categories serve as a system of orientation for self-reference because they create and define the individual's place in society in addition to providing a means to systematise the

social world.

Before discussing social identity theory which accounts for the underlying factors that lead people to engage in ethnocentrism it is useful to briefly describe the original minimal group experiments that led to the formation of this theory. A minimal group was used to demonstrate that ethnocentrism could be produced through social categorization (Tajfel et al., 1971). After participants had been assigned to groups they allocated points (i.e. scarce resources) to members of their ingroup or outgroup using a matrix. Participants were required to make two allocations to either two members of the ingroup, two members of the outgroup or one member of the ingroup and one member from the outgroup. Throughout the original minimal group studies participants never allocated points to themselves. The rationale for this was that the absence of interaction or personal influence would allow for a clearer demonstration of ingroup bias (Paris, Bristol, Oregon, & Stirling, 1972).

There were five basic allocation strategies available to participants. Participants could adopt the “parity” strategy where equal points were awarded to both recipients (Bourhis, Sachdev, & Gagnon, 1994). Parity was the fairest strategy participants could select. Participants could have also chosen the “maximum joint profit” option, an economically rational strategy in which both recipients are awarded the maximum number of points. Another strategy available was the “maximum ingroup profit” strategy which awarded the highest number of points to the ingroup member regardless of the points awarded to the outgroup member. This seems like a logically economic strategy because it allows the ingroup member to gain the most number of points, although in some cases the outgroup members would have been awarded more points than the ingroup member. Participants were also able to select the “maximum difference” strategy. In this option the ingroup member was awarded a higher number of points than the outgroup member. This strategy created the greatest difference in

point allocations between ingroup and outgroup recipient, in favour of the ingroup member. However, this strategy was not economically rational because it awarded fewer points to the ingroup than the maximum ingroup profit strategy but it did create positive ingroup distinction. The last strategy available to participants was the “outgroup favouritism” option. This was the least economically rational strategy in relation to ethnocentrism because it required the participant to allocate the most points to an outgroup member.

The results of numerous replications of the minimal group experiment indicate that participants consistently tend to favour the ingroup over the outgroup by opting for the maximum difference strategy (Diehl, 1990; Bourhis et al., 1994; Tajfel, et al., 1971; Lowery, Unzueta, Knowles, & Goff, 2006). This is despite having options available that appear more economically rational which would result in higher profits to ingroup members such as the maximum ingroup profit strategy or maximum joint profit strategy albeit in some instances this would allow outgroup members to benefit more (Bourhis, et al., 1994). The tendency to favour the ingroup in minimal group studies is interesting given that participants never directly benefit from their allocations. These findings suggest that participants in these studies act in terms of their ingroup membership and intergroup categorization rather than as individuals. The least used strategy was the outgroup favouritism option, although this response was observed in studies where low status groups acknowledged their inferiority in relation to high status groups (Bettencourt, Dorr, Charlton, & Hume, 2001; Rubin, Badaea, & Jetten, 2013; Sachdev & Bourhis, 1987; 1991)

Based on the findings of the original minimal group situation studies, social identity theory was developed to account for the intergroup behaviour observed during these experiments. Social identity is refers to the identity that social groups provide for group members (Tajfel &

Turner, 1986). These identities are both relational and comparative because they give group members indicators to define themselves as similar to or different from, as well as, better or worse than members of other groups (Tajfel & Turner, 1979). According to social identity theory these comparisons and the tendency to favour the ingroup are driven by the need to generate a positive self-concept. In order for a person's social group to influence their behaviour the individual must first internalise their ingroup membership as an aspect of their self-concept. Thus, a social identity cannot be *imposed* on a person because he/she needs to *adopt* that identity. However, in some instances it could be argued that certain group characteristics such as racial markers, language or biological sex are so defining that it would be almost impossible for individuals to reject the social identity that accompanies these characteristics. The main point of this line of argument is that for an individual to adopt a social identity as his/her own he/she needs to internalise that social identity. For instance, biological sex is a good example of a social identity that is often *imposed* on people, gender nonconformist are often punished socially for behaving in an atypical manner. However, trans\* people have created a social identity of their own which rejects the social identity that accompanies their biological sex (Worthington, Savoy, Dillon, & Vernaglia, 2002).

Social identity can be positive or negative based on the status of the social groups to which a person belongs. In addition, the value of one's own group is determined with reference to other relative groups through social comparisons. However, not all groups are used in these social comparisons, only groups that can be meaningfully compared (Brunner & Sandner, 2012; Turner, Brown, & Tajfel, 1979). To maintain a positive social identity the ingroup needs to be positively differentiated or distinct in some way from other outgroups. However, when a social identity proves to be unsatisfactory there are a few strategies that group members may implement to improve their social identity. Individual group members may



attempt to leave their current group to join a better group or collectively group members they may strive to improve their existing group. The strategy selected by group members depends on characteristics of the social system in which they exist. These characteristics relate to the perceptions held by group members associated with the legitimacy and stability of the status differences and effectiveness of competition. A more detailed exploration of these characteristics will be presented under the heading *the consequences of inequality and the effect of status on the production of ethnocentrism*.

Thus far the writer has made a concerted effort to focus on theories that have emphasised *group influence* in producing ethnocentrism rather than *individualistic theories* such as the authoritarian personality theory which suggests ethnocentrism is associated with personality characteristics such as rigid thought processes (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). Social identity theory, as described in the previous paragraph, suggests that a positive social identity rests on the individual's desire to maintain a positive self-esteem by seeking positive distinctiveness for the group. The danger of the self-esteem hypothesis is that an emphasis on the individual as the unit of analysis rather than the group represents a step backwards in defining a social psychology theory of intergroup behaviour. Social identity theory is complemented by self-categorization theory's recognition that the group has as much or perhaps more influence on the individual as the individual has on the group when regarding social identity.

Therefore, it is important to focus on the interdependency of the individual and social aspects of social identity theory that are used to explain the interaction in everyday exchanges between people. Tajfel and Turner (1979, p. 34) noted that people are influenced by their personal characteristics as well as their social identities when interacting with others, they

referred to this as the “interpersonal ↔ intergroup continuum”. The social situation determines which end of the continuum a person will interact from. For instance, when interacting with a close relation such as an intimate partner or old friend, a person will be inclined to act and be perceived in terms of their individual characteristics and their interpersonal relationship (Tajfel & Turner, 1979). In contrast, under circumstances where interactions are based on group memberships, people are likely to be perceived solely based on their affiliation to the group and would be viewed as homogenous. For instance, soldiers from opposing countries are likely to be perceived as a stereotyped group of representatives with little or no regard for their personal characteristics (Tajfel & Turner, 1979).

*The Consequences of Inequality and the Effect of Status on the Production of Ethnocentrism*

Contemporary research indicates that status affects the phenomenon of ingroup favouritism and outgroup discrimination (Bettencourt et al., 2001; Bourhis & Gagnon, 2003; Rubin et al., 2013). Before discussing inequality and its effect on ethnocentrism, it is useful to properly conceptualise equality. Often equality is mistakenly equated with the notion that something must be identical for it to be equal. This fallacy is elegantly dismissed by Blackburn’s (2008, p. 251) illustration of equal triangles. In Figure 1 there are two equal equilateral triangles, the third scalene triangle is also considered equal even though it is not identical. However, both types of triangles are considered equal when they cover the same amount of area. Gender equality debates offer a real world example of equality that does not necessarily require agents to be identical. While men and women may be considered equal they do not have to be identical. For instance, a male or female may be equally eligible for the same occupations even though they are different sexes (Blackburn, 2008).

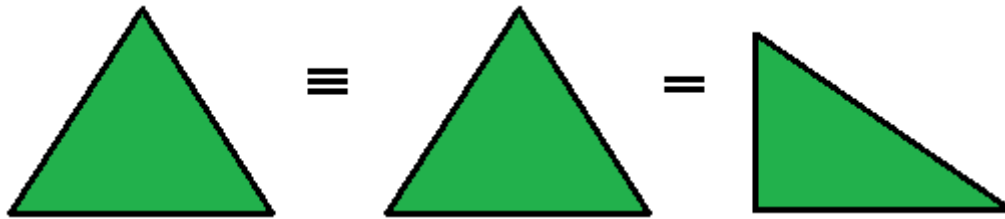


Figure 1. Blackburn's equal triangles.

In contrast, social inequality often leads to differences in social status. Social inequality is defined as “the condition where people have unequal access to valued resources, services and positions in the society” (Kerbo, 2003, p. 11) and social status is defined as “a ranking or hierarchy of perceived prestige” (Tajfel & Turner, 1979, p. 37). Under conditions of inequality which support differential status positions in a social hierarchy it is difficult to logically conceive that low status groups could convincingly regard themselves as better than high status groups. In fact, among stratified groups it is generally high status groups that exhibit ethnocentrism while low status groups often engage in outgroup favouritism. The phenomenon of outgroup favouritism among low status groups has been observed by various researchers (Ellemers, Wilke, & van Kippenberg, 1993; Frederico, 1998; Lei & Vesely, 2010; Nadler & Halabi, 2006; Rubin et al., 2013; Tajfel & Turner, 1979). For instance, minority or subordinate groups such as black South Africans, black Americans, New Zealand Maoris and French Canadians consistently tend to favour the dominant outgroup and derogate their own ingroup (Tajfel & Turner, 1986). Evidence of outgroup favouritism has been documented throughout history for instance Aristotle claimed that only Greeks possess perfectly balanced positive qualities which are lacking in other groups (Gumplowicz, 1892). This is interesting given that Aristotle himself was a Macedonian and was exiled from Greece because he was a foreigner (Gray, 2011). Various social psychology studies have also documented this phenomenon, for example in studies that have reported black pre-schoolers' preferences for

white dolls (high status) over black dolls (low status) (Clark & Clark, 1939; Horowitz, 1939; Hraba & Grant, 1970; Hughes, Kiecolt, Keith, & Demo, 2015). The notion of outgroup favouritism directly contradicts Sherif's (1961) assertion that inequality between groups should provoke ethnocentrism by both groups because status differences tend to accentuate intergroup conflict.

Outgroup favouritism appears to be contingent on the environmental factors that support the social system. Firstly, the status differences between the high and low status groups need to be accepted as legitimate (Lei & Vesely, 2010; Rubin et al., 2013). Secondly, the social system needs to be regarded as stable (Lei & Vesely, 2010; Rubin et al., 2013). Thirdly, there needs to be no existing intergroup competition or conflict (Lei & Vesely, 2010).

*Legitimacy, stability and competition.*

The perceived legitimacy and stability of hierarchical social systems appear to be the most important contributing factors for ethnocentric attitudes among groups. The legitimacy and stability of a social system is protected by the range of social comparisons that are available to groups (Brunner & Sandner, 2012). Often status differences reduce perceived similarity between groups and only relatively similar groups engage in social comparison. When subordinate groups internalise their identity as inferior they tend to accept the differential status positions of the existing social system (Tajfel & Turner, 1979). When these social systems are perceived as stable, the social identity of groups is secure (Tajfel & Turner, 1979). In addition, dominant groups who are perceived as legitimate tend to be intolerant of attempts by lower status groups who try to change the intergroup situation.

However, when status differences between groups are perceived as illegitimate or the social

system is viewed as unstable, low status groups may question the existing social environment in an effort to strive for positive distinctiveness. Low status groups may engage in one of the following strategies to achieve positive distinction. Individual members of low status groups may attempt to move from their ingroup into a higher status outgroup (Bettencourt et al., 2001; Tajfel, 1982). Individual mobility is an individualist approach that represents a disidentification with the ingroup (Tajfel, 1982). While a single member of the low status group may benefit through this strategy it does not effect the low status of the individual's former group. Upward social mobility is characterised by the American dream ideal, which posits that individuals may climb the social ladder through hard work, talent and ambition (Hirschman, 1970). However, this strategy is not always available. For instance it would be difficult, if not impossible, for a person to change their race, although examples of racial reclassification were noted during South Africa's apartheid era where light skinned non-whites who were able to pass for white changed their racial classification in order to benefit from the oppressive nature of the apartheid system (Ifekwunigwe, 2015; Watson, 1970).

When individual mobility is unavailable or undesirable, low status groups may engage in social creativity or social change. Choosing to engage in social creativity leads low status groups to seek positive distinctiveness through redefining or changing the dimensions they use to compare social groups. In this strategy the low status group works to change negative perceptions of attributes into positive perceptions. A well-documented example of social creativity is the *black is beautiful* movement (Skevington & Baker, 1989). Although, social creativity may not necessarily change the group's access to resources or actual social position it may serve to enhance the group's positive evaluation of the newly redefined characteristic leading to a more positive social identity. Low status groups may also elect to compare themselves to a different outgroups in order to gain positive distinction.

In contrast, when there are marked stratification between groups to the extent that it would be difficult or impossible for low status groups to invest themselves in an unsatisfactory, underprivileged or stigmatised group, low status groups may choose to strive for social change through direct competition or conflict. For instance, in societies where there are caste systems, low status groups may rebel against the dominant group in order to force social change to alter their social standing (Tajfel, 1982). Once social change has been achieved the former low status groups often guard their achieved status with militancy (Tomlinson, 2001). Alternatively, Rubin et al. (2013) reported that ethnocentrism among low status groups is not only observed as a result of competition to distinguish themselves as better than a high status outgroup, it can be produced as a compensatory response where the ingroup strives to establish themselves as equivalent to a high status outgroup.

*My original contribution to the existing body of literature and conclusion*

To date there has been extensive research conducted on the phenomenon of ethnocentrism (Bizumic, et al., 2009; Rabbie & Horwitz, 1969; Tajfel, 1982; Tajfel & Turner, 1979, 1986; Tajfel, et al., 1971). However, there are areas of the phenomenon which allow for further exploration. The present study will contribute to the existing body of literature by exploring ethnocentrism using a novel instrument which allows the phenomenon to be studied as it unfolds through interaction rather than the traditional paper-and-pencil methods where participants “interact” in isolation. The present study used the give-and-get token allocation game in the Virtual Interaction Application (VIAPPL) (Durrheim, Quayle, Titlestad, & Tooke, 2014) which allowed participants to interact in real time as avatars within a virtual arena. Participants were able to take into account the actions and reactions of ingroup and outgroup members when making their allocation decisions. Thus, the experimental setting in

the present study could be considered as a microcosm or society rather than an experimental vacuum that created when participants are isolated in experiments (Condor, 2003).

Further, a psychometric scale was included to systematically assess the attitudes of participants toward the ingroup and outgroup before and after interaction. Psychometric assessment has been neglected in classic social psychology studies on ethnocentrism such as the Robbers Cave experiment and original minimal group experiments although changes in attitude were documented within these studies (Brewer, 1979). Further, social identity attributes ethnocentrism to intergroup relations that foster positive social identity and group distinctiveness, generally predicted on status differences. The present study included both equality and inequality conditions to explore the effect of status on the production of ethnocentrism.

Bizumic (2014) suggested that ethnocentrism should be reconceptualised as being derived from a sense of group self-centredness and self-importance. This suggests that ethnocentrism is essentially a selfish practice that stems from the desire to elevate the ingroup. For the purpose of this study selfishness is defined as hoarding tokens through self-allocation so as to personally benefit from resources as opposed to sharing tokens with the ingroup which would indicate a tendency toward ethnocentrism. In contrast, sharing tokens with the outgroup may indicate outgroup favouritism or generosity to the outgroup should that particular participant be a high status individual or member of a high status group. Evidence of ethnocentrism as self-centredness can be found in research exploring group attitudes toward affirmative action policies (Lowery et al., 2006). According to Lowery et al. (2006) when high status groups reject affirmative action policies they tend to do so in order to protect the ingroup's interests rather than further oppress the disadvantaged low status group. Simply put, the ingroup acts

selfishly in their actions and does not necessarily consider the outgroup in their rationale for making these decisions. However, selfishness is seldom considered a group-beneficial strategy, typically evolutionary psychology theories propose that altruism benefits the group and selfishness undermines altruism (Eldakar & Wilson, 2008). Game theory suggests that ethnocentric or humanitarian strategies (i.e. generosity toward members of both the ingroup and outgroup) always dominate selfish strategies (Shultz, Hartshorn, & Hammond, 2008). Often, those who engage in selfish behaviour may reap initial rewards but soon succumb to punishment by others in the social system through alienation which tends to eradicate selfish behaviour. In contrast, Eldakar and Wilson (2008) suggest that selfishness can be used as second-order altruism to eliminate true selfishness within the group in situations where resources must be shared. For instance, experiments that examine how altruism evolves through kinship and reciprocation indicate that hoarding resources while punishing others by withholding resources from others who demonstrate similar selfish tendencies serves to create a stable environment that promotes altruism. Further, because punishment is a costly strategy the selfish hoarding behaviour that these “selfish punishers” demonstrate serves as a reward for the opportunities for reciprocation that they sacrifice as a result of punishing others in the social system (Eldakar & Wilson, 2008, p. 6982). It is possible that this assumption explains why participants in minimal group situation experiments engage in ethnocentric behaviours even though they are aware that they never directly benefit from their allocations because as human beings we have been conditioned to expect a reward in response to altruistic behaviour (Eldakar & Wilson, 2008). The original minimal group experiment studies excluded the option for participants to personally benefit from their allocation decisions (Tajfel, et al., 1971). The present study included the option to self-allocate tokens, by including, the option to be selfish through self-allocation it can be



established whether ingroup favouritism is essentially a facet of selfish behaviour or if social identity prevails and participants are driven to act as group members rather than individuals.

### **Chapter 3: Aims, Rationale and Hypotheses**

#### *Aims*

The aims of this dissertation are to:

1. Examine the effect of status on the production of ethnocentrism.
2. Examine the effect of status on the production of selfish behaviour.

#### *Rationale*

There is a large body of literature supporting the theory that the *idea* of being in a group is enough to elicit ethnocentric behaviour (Bourhis & Gagnon, 2003; Brewer, 1979; Durrheim et al., 2014; Tajfel et al., 1971). This thesis extends this theory to examine what effect, if any, status has on this phenomenon. By introducing inequality at the start of the experiment, the effect of interacting as a low, equal or high status member of society could be examined. The option to self-allocate resources provided an opportunity to study whether ethnocentrism is in fact just an expression of selfishness. Previous research examining ethnocentrism has excluded the option to self-allocate based on the rationale that the theory that people favour their ingroup even when this has no benefit to themselves. Including the self-allocation option allowed for this theory to be tested by exploring whether given the opportunity would participants hoard their tokens rather than sharing them with their ingroup.

#### *Research Questions, Hypotheses and Predictions*

Tables one and two contain the study's research questions, complementary hypotheses and a prediction based on the literature reviewed in chapter 2.

Table 1

*Status hypothesis*

Research question	Are high status people more ethnocentric than low status people?
Hypotheses	H <sub>0</sub> : There is no significant difference in ethnocentric behaviour among high status participants compared to low status participants.  H <sub>1</sub> : High status participants demonstrate significantly higher levels of ethnocentrism compared with low status participants.
Prediction	Based on the literature reviewed in chapter 2 it is predicted that a significantly higher level of ethnocentrism will be observed among the participants who were categorised into high status participants at the start of the experiment.

Table 2

*Selfishness hypothesis*

Research question	Are low status people more selfish than high status people?
Hypotheses	H <sub>0</sub> : There is no significant difference in self-allocation among high status participants compared to low status participants.  H <sub>1</sub> : Low status participants demonstrate significantly higher levels of self-allocation than high status participants.
Prediction	Based on the literature reviewed in chapter 2 it is predicted that a significantly higher level of self-allocation will be observed among the participants who were categorised into low status positions at the start of the experiment.

## Chapter 4: Methodology

This chapter describes the operations that were performed during the study to address the aims, research questions and hypotheses listed in chapter 3. It begins with a detailed description of VIAPPL followed by an overview of the research design, sample and sampling technique, data collection procedure, methods of analysis, reliability and validity. The chapter concludes with an outline of the ethical considerations that were taken into account when developing and conducting the study.

### *Virtual Interaction Application (VIAPPL)*

#### *VIAPPL Structure*

The VIAPPL enables researchers to manipulate experimental conditions by programming study specific variables. Although the give-and-get game provided a platform for participants to interact the actual interaction through token exchange was left entirely up to the participants. This ensured that the norms and structures which emerged and evolved over the course of the experiment were based on the participants' actions and not experimenter's instructions.

The 2014 version of VIAPPL used in the present study consisted of an integrated survey (refer to Appendices 1.1 and 1.2), a grouping function and the "give-and-get" token exchange game. Manipulation of the following variables was possible using the 2014 version:

1. Number of trials
2. Number of rounds nested in each trail
3. Group belonging
4. Number of groups

5. Group size
6. Position of groups and individuals relative to each other in the arena
7. Starting token balance of groups/individuals.

#### *Pre- and post-test Questionnaire.*

The survey was supported using LimeSurvey, an online survey manager that allows researchers to develop their own questionnaires to be administered to participants during an experiment. The questionnaire was administered to investigate the psychological aspects of the intergroup setting. A questionnaire comprised of 3 demographic items and 11 exploratory items was used to assess *ingroup identification*, *legitimacy*, *stability* and *competition* attitudes was administered before and after the token exchange activity (refer to Appendices 1.1 and 1.2).

#### *Grouping*

Categorisation of participants into groups was an important aspect of the study. Participants were led to believe that they had been grouped according to their estimation skills in an impossible dot counting task (refer to Figure 2). Although, participants believed that they had been grouped according to the grouping task, in reality they were randomly assigned to groups in order to ensure that no systematic differences existed between groups. To foster a minimal sense of groupness, participants were told that studies have indicated that there are significant differences between people who tend to estimate high or low when performing dot counting tasks. However, participants were not told whether they were part of the high or low estimate group. Participants were only told that they would be placed into different groups. This grouping option was used in versions of the original minimal group situation studies (Tajfel et al., 1971; Commins & Lockwood, 1979).

Using VIAPPL's dot estimation task allowed the researcher to maintain Tajfel et al.'s (1971) concept of a minimal group. By presenting participants as uniform avatars (dots in the 2014 VIAPPL version), all social and group category indicators that would usually be used by group members to negotiate an intergroup setting were removed. Thus, the social phenomena under investigation, namely the effect of status and selfishness on the production of ethnocentrism, in the present study could be studied under minimal conditions in a controlled environment.

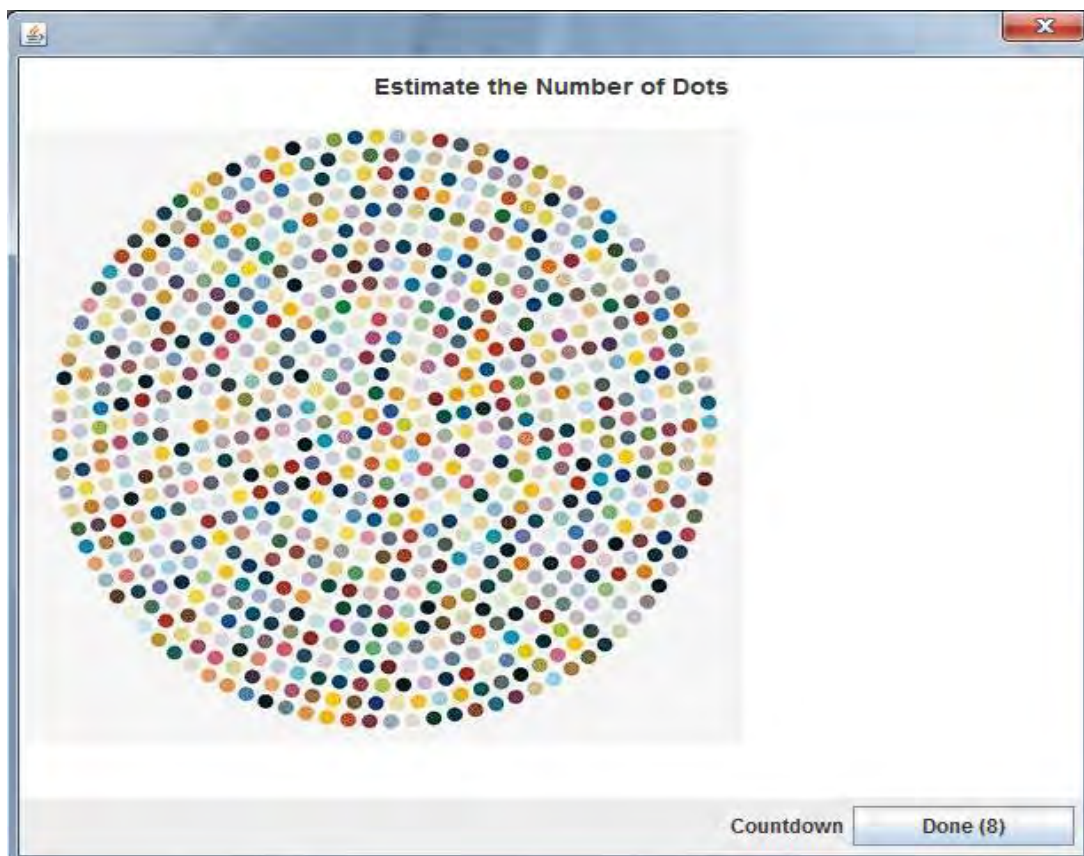


Figure 2. Grouping activity: Dot counting task.

### *The Give-and-Get token exchange game*

The Give-and-Get token exchange game was used as the present study's main instrument.

The game interface (refer to Figure 3) contained the arena and an information panel.

Participants were represented by avatars arranged in a circle. Participants could identify their avatar by the broad black outline around their avatar. The other participants in the arena were represented by avatars that had thinner outlines around the edge of their avatars. Each avatar's token balance (displayed in brackets) could be seen by all participants throughout the game. The information panel, to the left of the arena, contained the participants' token balance and number of tokens playable per round, the trial and round number and group token balances (if the specific game had more than one group interacting).

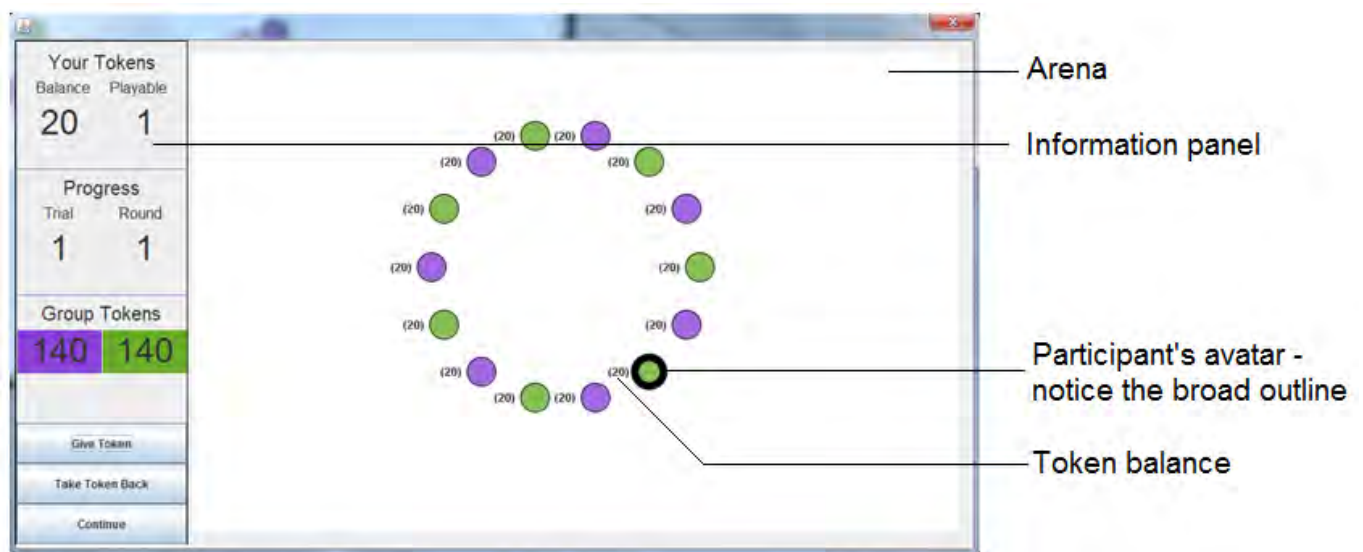


Figure 3. Game interface: Give-and-get token exchange game.

Participants interacted by exchanging tokens. In each round a participant could allocate one token to any avatar in the arena. Once a participant had allocated their token the arena background would turn from white to grey. Once all participants had completed the round by allocating their token a yellow "round moves" screen appeared (refer to Figure 4). The round

moves screen displayed the distribution of tokens during the previous round with arrows linking avatars that had allocated and received tokens from one another. Additionally, token balances were updated. After the final round the post-test questionnaire appeared. Once the participant had completed the questionnaire a textbox appeared indicating the game had ended and the participant's final token balance was displayed.

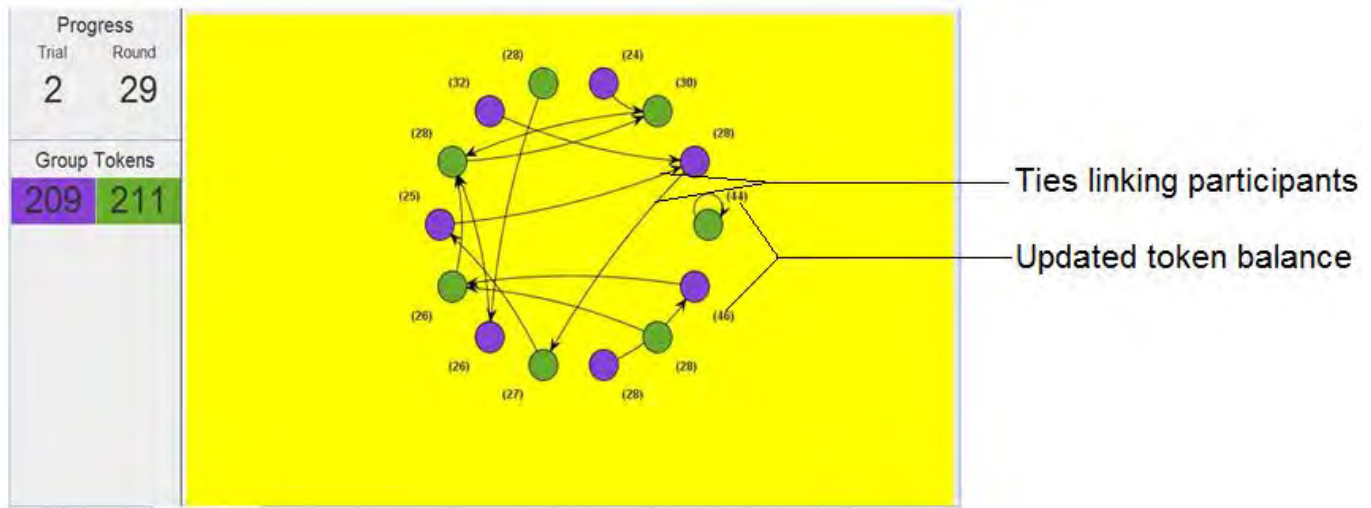


Figure 4. Round moves screen.

### *Research Design*

The study used a quantitative within-subjects and between-groups experimental design, commonly referred to as a mixed design. Time was used as the within-subjects factor. Data was collected on participants' token allocation behaviour over a series of 40 rounds. The within-subjects factor was complemented by the questionnaire administered pre- and post-experiment. The experiment had two research questions, the first research question related to ethnocentrism which was measured by the dependent variable i.e. the number of tokens allocated to an ingroup member. The second research question related to selfishness which was measure by an additional dependent variable i.e. the number of self-allocated tokens. The between groups factor was measured using the same independent variables for both research questions. There were three independent variables including group salience (where



participants were placed into an individual or group condition), equal or unequal status (where participants began the experiment with an equal or unequal number of tokens) and low or high status (where participants in the unequal status condition began the game with either 10 or 30 tokens).

#### *Experimental condition cells*

The experiment consisted of four cells. In each cell, participants were randomised into either an individual/group condition with an equal/unequal status (refer to Table 3). Those with unequal status were further delineated by low/high status. Each cell comprised of 14 participants randomised and was replicated four times. Thus, the entire sample for the present study amounted to 224 participants.

Table 3

*Description of experimental condition cells*

Cell	Individual/Group	Status	Description
1	Individual	Equal	<ul style="list-style-type: none"> <li>• Uniform grey avatars for all participants</li> <li>• All participants begin with a balance of 20 tokens</li> <li>• Replicated four times with 14 different participants per replication</li> </ul>
2	Individual	Unequal	<ul style="list-style-type: none"> <li>• Uniform grey avatars for all participants</li> <li>• High status individuals begin with a balance of 30 tokens</li> <li>• Low status individuals begin with a balance of 10 tokens</li> <li>• Replicated four times with 14 different participants per replication</li> </ul>
3	Group	Equal	<ul style="list-style-type: none"> <li>• Seven participants randomly assigned to green avatars</li> <li>• Seven participants randomly assigned to purple avatars</li> <li>• All participants begin with a balance of 20 tokens</li> <li>• Replicated four times with 14 different participants per replication</li> </ul>
4	Group	Unequal	<ul style="list-style-type: none"> <li>• Seven participants randomly assigned to green avatars</li> <li>• Seven participants randomly assigned to purple</li> </ul>

---

avatars

- High status group members (purple) begin with a balance of 30 tokens
  - Low status group members (green) begin with a balance of 10 tokens
  - Replicated four times with 14 different participants per replication
- 

The questionnaires were administered to assess whether the interaction that occurred during the game effected the participants' *ingroup identification*, opinions regarding the *legitimacy* of differential status positions, *stability* of initial group differences and *competition* between groups. All items were measured on a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale included a neutral option being 4 (neither agree nor disagree). The four scales that were used to investigate the psychological aspects of the intergroup setting will now be briefly described. The items included in the ingroup identity, legitimacy and stability scales were adapted from established scales with good validity. Although, the competition items were not drawn from existing scales they were piloted in the 2013 version of the VIAPPL studies.

### *Ingroup Identification*

Three items were used to measure how strongly participants identified with their group. Two items from Doosje, Ellemers and Spears' (1995) scale were adapted for the individual and group questionnaire, these were 'I identify with other members of the group as a whole' (individual questionnaire) / 'I identify with the other members of my group' (group questionnaire) and 'I feel strong ties with the group as a whole (individual questionnaire) / 'I

feel strong ties with my group' (group questionnaire). The third item, 'I have a sense of belonging to the group as a whole' (individual questionnaire) / 'I have a sense of belonging to my group', was adapted from a scale by Terry and O'Brien (2001).

### *Legitimacy*

Three items were used to measure the participants' opinion regarding the legitimacy of the status positions in the experiment. Each item was adapted from different scales measuring legitimacy. The following items were included, 'The difference between me and the other players is justified and right' (individual questionnaire) / 'The difference between my group and the other group is justified and right' (Weber, Mummendey, & Waldzus, 2002); 'The difference between me and the other players makes sense' (individual questionnaire) / 'The difference between my group and the other group makes sense' (group questionnaire); 'The difference between me and the other players is the way it should be' (individual questionnaire) / 'The difference between my group and the other group is the way it should be' (group questionnaire) (Terry & O'Brien, 2001).

### *Stability*

Three items were used to measure the participants' opinion related to the stability of the social structure defined at the beginning of the game based on token distribution between participants/groups. The following items were included in the scale, 'In the next round of the game, how likely are individual token differences between players to change' (individual questionnaire) / 'In the next round of the game, how likely are group token differences between groups to change?' (group questionnaire) (Overbeck, Jost, Mosso, & Flizik, 2004); 'In the next round of the game, I think the relationship between players will remain stable for the duration of the game' (individual questionnaire) / 'In the next round of the game, I think

the relationship between groups will remain stable for the duration of the game' (group questionnaire); 'The current relationship between players will not change easily' (individual questionnaire) / 'The current relationship between groups will not change easily' (group questionnaire) (Mummendey, Kessler, Klink, & Mielke, 1999).

### *Competition*

Two items were included to measure the participants' opinion of completion between participants/groups. The following items were included, 'I felt that I competed with the other players' (individual questionnaire) / 'I felt that my group competed with the other groups' (group questionnaire) and 'I felt that I cooperated with the other players' (individual questionnaire) / 'I felt that my group cooperated with the other groups' (group questionnaire). The items regarding cooperation was reverse scored.

Grouping, status and allocation strategy were used as the between-groups factors. There were two grouping conditions: an *individual* condition where group membership was masked and all avatars were grey; and a *two group* condition where groups could be differentiated by colour. Additionally, there were two status conditions: an *equality* condition where all participants began the game with the same number of tokens; and an *inequality* condition where half the participants began the game with 10 tokens and the other half began the game with 30 tokens. Lastly, there were three allocation strategies available to participants: *token to ingroup*; *token to outgroup* or *token to self*. Participants were not informed about these strategies however they were told that they could allocate their token of any of the 14 participants in the arena.

## *Validity, Reliability and Rigour*

### *VIAPPL*

The VIAPPL software has recently been created and is still being developed and tested (Durrheim et al., 2014). Thus, the validity and reliability of the software need to be established over time as the programme is adopted by other researchers.

The experimental design ensured that the internal validity of the study was fairly robust. Each experiment was conducted using a standard script (refer to Appendix 2) to reduce experimenter effects that may have occurred between experiments. Additionally, the following control measures were observed for each experiment, participants were fingerprinted to ensure that they only participated once during the 2014 data collection cycle, participants were randomly allocated to avatars and participants were instructed not to communicate with each other during the experiment.

Due to the fact that a nonprobability sampling technique was used and the sample only consisted of students from the University of KwaZulu-Natal (Pietermaritzburg campus) the external validity of the study was weak. However, the study was concerned with the basic processes of interaction and how social phenomena such as ingroup bias and selfishness in relation to status are produced in these interactions. Thus, the researcher was specifically interested in the impact of norms on interaction in the minimal group setting which may indicate local norms rather than universal norms. Further studies will have to be conducted to assess the external validity of the results.

### *Pre- and Post-test Questionnaire*

Items included in the pre- and post-test questionnaire were adapted from existing scales that have been adopted and adapted by various authors however the exact psychometric properties of these scales could not be ascertained (Obst, White, Mayor, & Baker, 2011; Postmes, Haslam, & Jans, 2013). Therefore, the results of the psychometric data should be interpreted with caution.

The internal validity of the pre- and post-test questionnaire was fairly robust the same individuals were assessed and compared (Huizingh, 2007). Post hoc tests using the Statistical Package for the Social Sciences (SPSS) were used to measure questionnaire's internal reliability. A Cronbach's Alpha test was performed on the psychometric data. The results indicated that the Ingroup identity items had an alpha of 0.84 (pre-test) and 0.90 (post-test) and the legitimacy items had an alpha of 0.82 (pre-test) and 0.82 (post-test) both were satisfactory. However, the stability items, only produced an alpha of 0.51 (pre-test) and 0.41 (post-test) and similarly the competition items had an alpha of 0.36 (pre-test) and 0.13 (post-test). Due to weak alpha score the competition items were removed and no further analysis was performed on these items.

### *Sample and Sampling Technique*

#### *Sample*

The sample consisted of 224 students from the University of KwaZulu-Natal (Pietermaritzburg campus). Individuals were eligible for inclusion in the sample if they were registered students at the university as gatekeeper permission obtained from the institution only covered registered students participating in the parent study that the present study used data from. All participants were required to be above the age of 18 to provide informed

consent without assistance from a parent/guardian. To protect the validity of the results participants were only permitted to participate once during the 2014 data collection cycle. Individuals who had participated in VIAPPL experiments prior to 2014 were permitted to take part as the experimental conditions for each data collection year were different. There were no explicit exclusion criteria that prevented individuals from participating in the study if they met all the inclusion criteria.

### *Sampling Technique*

The sample was recruited using non-probability sampling. Although convenience sampling is not considered ideal as it compromises external validity the advantages of this technique outweighed the disadvantages in relation to the present study. The major advantage of this technique was that it allowed the researcher to recruit a large number of participants over a short period at a reduced cost (Salkind, 2012). In order to account for the compromised external validity of the study the researcher strove to enhance the internal validity.

The major disadvantage of convenience sampling relates to the lack of generalisability associated with this technique. Additionally, the population used in the study consisted of students. Research conducted by Henrich, Heine and Norenzayan (2010) have suggested findings using student samples should be interpreted with caution. This is because students may represent a sector of the general population that may include a disproportionately high number of individuals who have a higher level of education or belong to more privileged economic strata.

However, the focus of the study was on the examination of the ethnocentrism phenomenon. Researchers (Tajfel et al., 1971; Commins & Lockwood, 1979) who have examined this



phenomenon before have frequently used a similar sampling techniques. To be clear, the researcher is not suggesting that it is acceptable for the present study to use this sampling technique simply because others have used a similar technique before. Rather, the phenomenon of interest is being studied in different populations leading to the boundaries of the phenomenon being adjusted to accommodate the findings that each new study produces. Thus for this reason, a greater emphasis has been placed on the importance of internal validity in the present study so that the study may contribute to the existing body of literature.

#### *Recruitment Procedure*

Participants were recruited by two members of the VIAPPL research team 20-30 minutes prior to each experiment. Recruiters approached potential participants across the entire Pietermaritzburg campus. Recruiters briefly explained the purpose of the study (which was to collect data on group dynamics using a computer game) and potential participants that expressed interest in participating were directed to the PsychLab (Psychology Computer Laboratory). On average two experiments were conducted per day over a three week period at the start of the second semester.

#### *Instruments*

The study used two instruments a pre- and post-test questionnaire and the VIAPPL give-and-get token exchange game.

### *Data Collection Procedure*

The step-by-step data collection procedure is described in Table 4.

Table 4

#### *Description of the data collection procedure*

<b>Step</b>	<b>Activity</b>	<b>Description</b>
1	Pre-experiment set up	A cell with the specific experimental conditions and unique login code was created on the server computer in the server room.
2	Finger-printing and standby participants	The first 14 Participants that arrived at the Psychlab were finger-printed and randomised to a computer station. Additional participants were informed that they could wait until the informed consent procedure was completed in case any places on the experiment became available by those opting out. Additional participants were given the option to place their name on a list for the next experiment and

		were given preference over new participants.
3	Informed consent procedure	Once seated at the computer station the experimenter explained the informed consent form (refer to Appendix 3) and gave the participants an opportunity to opt-out <sup>1</sup> . Participants who chose to continue with the experiment were asked to sign and submit the informed consent forms.
4	Practice trial	The game was explained during the two-round practice trial.
5	Pre-test questionnaire	Following the practice round participants completed the pre-test questionnaire
6	Randomisation into groups for group members	Following the pre-test questionnaire participants in the group cells were randomised in groups using the dot counting task. This step of

<sup>1</sup> In the event that a participant opted-out during the course of the experiment the experiment was cancelled and all participants were paid a flat rate of R20,00. The data collected was deleted from the server as only completed experiments could be analysed.

		the experiment was omitted in the individual cells.
7	Experiment	Following the pre-test questionnaire (individual cells) or after group randomisation (group cells) participants completed the 40 round give-and-get token exchange game.
8	Post-test question	The questionnaire was re-administered following the game.
9	Reimbursement	On completion of the experiment participants were paid the rand value of the number of tokens that they had accumulated by the end of the game.

### *Data Analysis*

The VIAPPL and psychometric data were analysed separately.

#### *VIAPPL Data*

Two generalised linear mixed models were used to analyse the VIAPPL data. This method of data analysis was selected because of the binary nature of the data (Fox, 2015). In addition, generalised linear models are robust even when analysing data for a sample that is not

normally distributed, as in the case of the present study (Fox, 2015). In order to answer the research questions the data had to be analysed by firstly determining whether there was a statistically significant difference in ethnocentrism and selfishness between participants who had equal or unequal status. Once this was established the data could be further analysed using a second generalised linear model to determine whether there was a statistically significant difference in ethnocentrism and selfishness between low and high status participants. The generalised linear models analysed the interaction between the dependent variables i.e tokens allocated to the ingroup (ethnocentrism) and self-allocated tokens (selfishness) and the independent variables i.e group salience (individual/group condition); equal or unequal status and low or high status. This will be referred to as the “token allocation strategy” in the results section. It should be noted as a limitation of the methodology, that the analysis of ethnocentrism and selfishness in the unequal status conditions will use absolute token numbers as opposed to the relative proportion of tokens allocated by participants. The potential for analysing the results using relative proportions was only identified during the examination process of this thesis and should be noted when interpreting the results of the study. The potential effect of that an analysis using relative proportions may have had on the results of the data are briefly discussed in the Chapter 6 (refer to page 79).

#### *VIAPPL Data Management*

The data consisted of the token exchanges made by participants during the token exchange game. This data was captured using the VIAPPL software programme and stored on the PsychLab computer server. The data was imported to Excel, inspected and cleaned. The data was restructured into person period format. Person period format refers to a spreadsheet that lists each participant and stacks all of the participant’s data over the duration of the

experiment before listing the next participant and all of their observations for every period in the experiment (West, Welch, & Galecki, 2014). SPSS requires data to be presented in this format when using a GLM for analysis. The final Excel spreadsheet was exported to SPSS for analysis.

The final sheet was imported to SPSS. The data was analysed in SPSS. The raw data contained in the Excel spread sheets and SPSS outputs will be stored for a minimum period of five years on a secure external hard-drive owned by the researcher.

### *Psychometric data*

Descriptive statistics for the participants' age, gender, race and year of study have been reported. In addition, repeated measures ANOVAs were used to analyse whether the participants' opinions regarding their *ingroup identification*, the *legitimacy* of differential status position, the *stability* of initial group differences and *competition* between groups differed following interaction in the give-and-get game.

### *Data Management*

The psychometric data was captured using LimeSurvey and stored online in a secure user account. The data was imported to Excel, inspected and cleaned. The Excel spreadsheet was exported to SPSS for analysis. The data was analysed in SPSS. The raw data contained in the Excel spread sheets and SPSS outputs will be stored for a minimum period of five years on a secure external hard-drive owned by the researcher.

### *Ethical Considerations*

To protect the people who participated in the study the seven principles for ethical research in social and biomedical research were taken into account when planning and executing the study (Emanuel, Abdoler, & Stunkel, 2014). The seven principles include *social value*, *scientific validity*, *fair subject selection*, *favourable risk-benefit ratio*, *independent review*, *informed consent*, and *respect for enrolled subject*.

#### *Social Value*

The study provided indirect social value because it employed new technology to generate information that could be used to guide future research (Emanuel et al., 2014). As a student project the study provided an opportunity for the researcher to learn essential skills related to the scientific method for conducting research (Emanuel et al., 2014). Further, the researcher intends to share knowledge generated from the study through future publication of study's findings.

#### *Scientific validity*

According to Emanuel et al. (2014) research is scientifically valid if it produces useful results and increases knowledge. Thus, this research may be considered scientifically valid because it produced useful results related to a novel method of studying an important social phenomenon and the results of the study may increase knowledge related to this established field of research. Further, the research was carefully planned and followed the scientific method to answer a specific question adding to the scientific validity of the study (Emanuel et al., 2014). A good sized sample was included to ensure that the result are convincing and the steps of the study were carefully documented to make that the study could be easily reproduced (Emanuel et al., 2014).

### *Fair subject selection*

Another important aspect of ethical research related to the fair selection of participants for the study (Emanuel et al., 2014). Although, nonprobability sampling was used the inclusion criteria for the sample was broad and established to protect the interests of the participants that were recruited. No one was excluded from the study provided the potential participant met the inclusion criteria.

### *Favourable risk-benefit ratio*

This study could be considered a low risk study as participants were only required to allocate tokens and answer a few questions regarding to their opinion of ingroup bias of their newly formed groups in the experimental setting. Following the experiment, the groups were dissolved and were unlikely to have any impact on the participants' life following the experiment. Participants were only required to participate for a short period and the researcher attempted to rectify any inconvenience due to time spent by ensuring that the experiment was as streamlined as possible. Participants volunteered for the study and had the opportunity to receive a small monetary payment to the value of the tokens that they collected by the end of the game. Although, the participants did not benefit directly from the study, this research may be considered beneficial to researchers and society interested in understanding group dynamics and different methods of studying the ingroup bias phenomenon.

### *Independent review*

Permission to conduct the study was obtained from the UKZN Research Ethics Committee.



### *Informed consent*

The most important aspect of ethical research may be the informed consent process (Emmanuel et al., 2014). The informed consent process consists of five components, including: *competence of the participants, full disclosure of the research goals, participants' comprehension of the research, voluntary participation and assurance that participants have not been unduly induced into participation* (Emanuel et al., 2014).

Participants were required to sign an informed consent form before participants, this form was fully explained by researcher prior to the experiment. To ensure that participants were competent to participate only university students over the age of eighteen years were recruited for the study. Although, the experiment required a minor form of deception related to group assignment, this was disclosed following the game and the reason for this was explained to the participants. No participant reported any feelings of discontent related to the necessary deception.

To ensure that the participants understood the details of the study that they were participating in the experiment was explained and participants were informed that they could ask questions at any stage. All participants stated that they understood what they study was about and what was required of them during participation. Participants were also informed that they study was voluntary and that they were free to leave at any stage and that there would be no consequences for them should they decide to opt-out or withdraw from the study. Further, participants were informed that they were not required to provide a reason for their decision to withdraw if they did not want to. To ensure that participants were not induced to participate they were informed that they would receive the monetary value of the tokens they

collected during the game and that it was possible that they could receive no money if their final token balance was zero.

*Respect for enrolled subject*

Throughout the experiment the researcher endeavoured to be respectful towards the participants and only recruiting participants that volunteered. The purpose of the study was explained and the participants' questions were answered fully. The researcher and assistants interacted with the participants politely and ensured that they participants were supplied with an information sheet regarding the study that listed the details of the researcher, team leaders and research ethics committee liaison for participants to contact should they have queries or complaints.

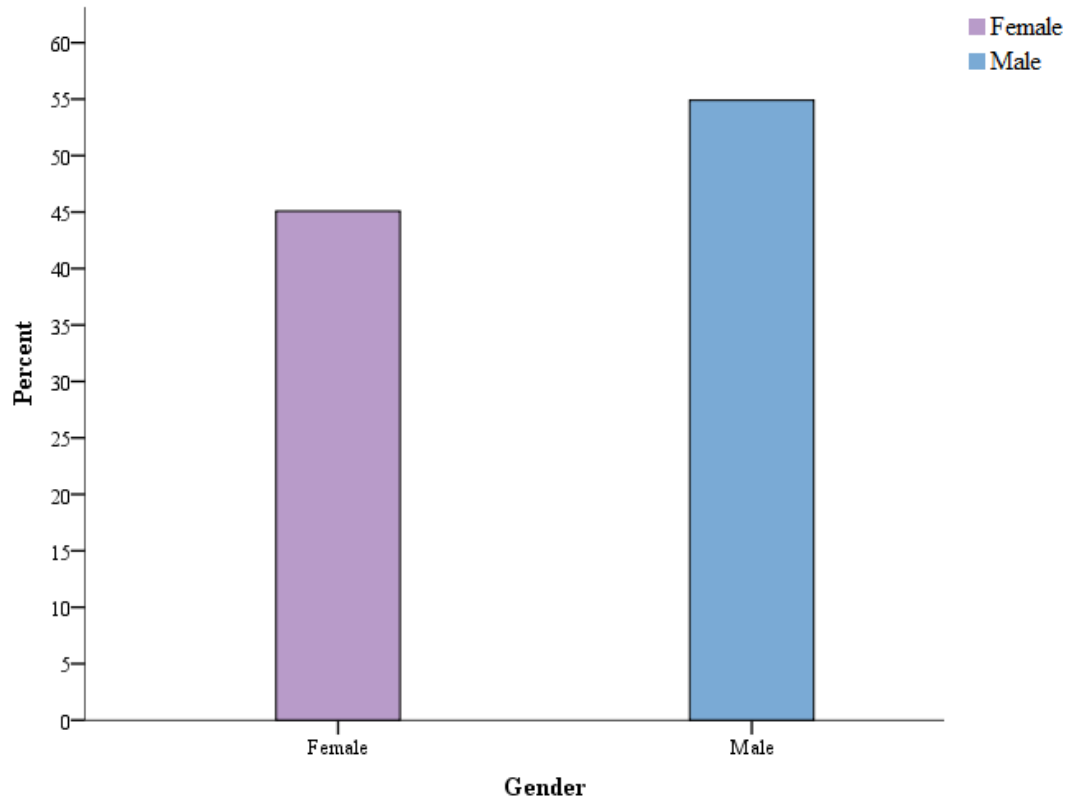
## Chapter 5: Results

The results of the VIAPPL data will be reported, followed by the results of the psychometric data. A detailed interpretation and discussion of these results will be presented in chapter 6.

### *VIAPPL Data*

#### *Descriptive Statistics*

The sample consisted of 224 students from the University of KwaZulu-Natal (Pietermaritzburg campus) with a mean age of 20.61 years (SD=2.23; Range: 17-32). Slightly more males (54.90%; n=123) participated in the study than females (45.10%; n=101) (refer to Figure 5). A disproportionately high number of Black students (93.80%; n=210) participated in the study (refer to Figure 6). Only 2.20% Indian (n=5), 1.80% Coloured (n=4), 1.80% White (n=4) and 0,40% Other (n=1) students made up the rest of the sample (refer to Figure 6).



*Figure 5. Percentage of female and male participants included in the sample*

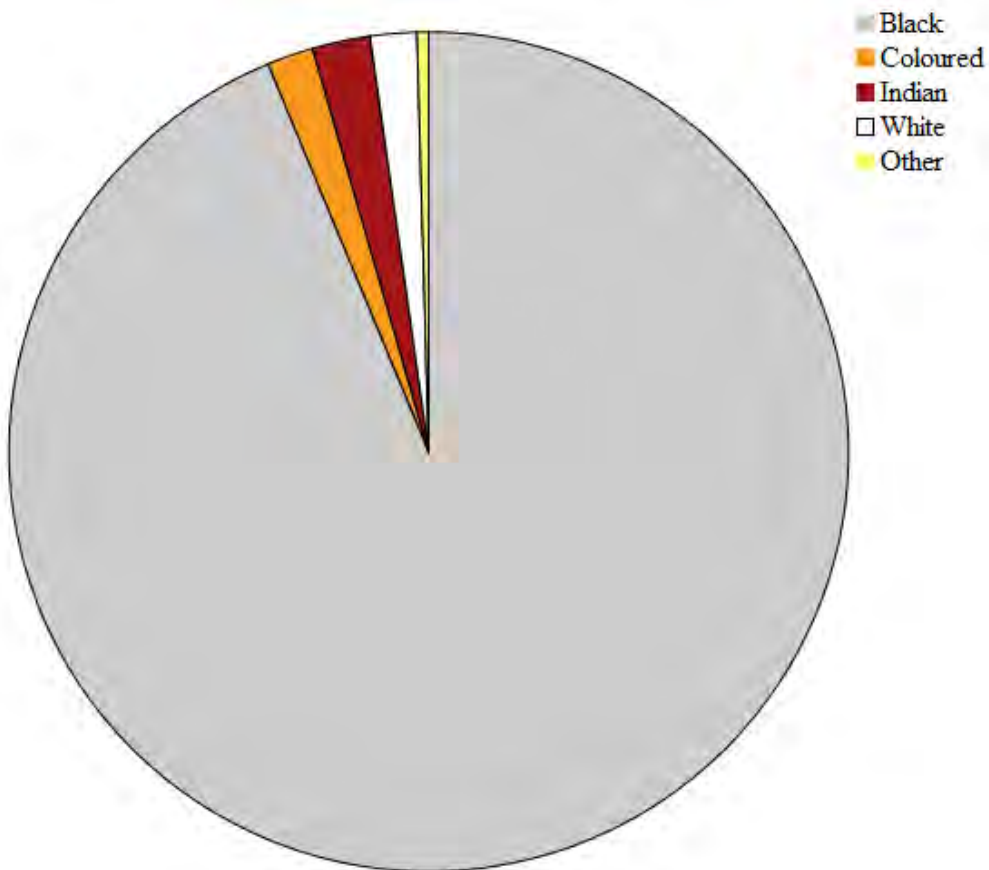


Figure 6. Racial distribution of participants included in the sample

### *Inferential Statistics*

*Are high status people more ethnocentric than low status people?*

*(Research question 1).*

The results of the analysis indicated that low status participants demonstrated a statistically significantly higher level of ethnocentrism than high status participants. However, identity as a *group member* was the most important variable that determined the tendency to exhibit ethnocentric behaviour. Further, participants interacting as individuals in the inequality conditions appeared to display ethnocentrism even though these participants were members of the same group. The individuals that demonstrated ethnocentric tendencies appeared to have distinguished between low and high status individuals within the group and treated these

individuals are separate groups. A detailed presentation of the analyses that lead to these findings is reported below.

#### GLM TYPE 1: THE EFFECT OF EQUAL AND UNEQUAL STATUS ON THE PRODUCTION OF ETHNOCENTRISM.

The first generalised linear model analysed the production of ethnocentrism based on the effect of equal and unequal status (referred to as Status (Equality/Inequality)) -among individuals versus group members (referred to as Group Salience). The production of ethnocentrism was determined by the participants' Token Allocation Strategy. Participants were able to allocate their tokens to either an ingroup member (indication of ethnocentrism), and outgroup member (indication of outgroup favouritism) or to the self (indication of selfishness). The results indicated that all of the main effects were statistically significant. This suggests that there was a significant difference in the number of tokens allocated to the ingroup compared to the outgroup ( $F(3, 220) = 14.02, p < 0.001, \eta^2 = 0.16$ ) and the number of tokens allocated to the ingroup compared to the self ( $F(3, 220) = 8.30, p < 0.001, \eta^2 = 0.10$ ). There was also a statistically significant difference between participants interacting as individuals versus those interacting as group members ( $F(2, 219) = 42.25, p < 0.001, \eta^2 = 0.28$ ). In addition, there was a statistically significant difference between participants who began the game with equal status compared to those who began with unequal status ( $F(2, 219) = 7.19, p < 0.001, \eta^2 = 0.06$ ).

The two-way interaction results give further insight in the significance of the main effects. The results indicated that the interactions between Token Allocation Strategy\*Group salience and Token Allocation Strategy\*Status (Equality/Inequality) were statistics significant. These-

way interactions will be presented in detail below. The three-way interaction among Token Allocation Strategy\*Group Salience\*Status (Equality/Inequality) was not significant.

Token Allocation Strategy\*Group Salience: Under certain conditions group members and individuals may exhibit ethnocentric behaviour

The way interaction between Token Allocation Strategy and Group Salience indicated that participants who interacted as group members favoured their own group ( $F(1, 220) = 34.74$ ,  $p < 0.001$ ,  $\text{partial } \eta^2 = 0.14$ )<sup>2</sup> (refer to Table 5) significantly more than participants who interacted as individuals. Group members consistently allocated tokens to a member of their ingroup ( $\bar{x}=30.30$ ;  $SD=8.86$ ;  $SEM=0.84$ ) (refer to Table 6) more often than they allocated tokens to an outgroup member ( $\bar{x}=9.70$ ;  $SD=8.86$ ;  $SEM=0.84$ ) (refer to Table 6).

Similarly, individuals also appeared to favour their “ingroup” ( $\bar{x}=23.65$ ;  $SD=7.88$ ;  $SEM=0.74$ ) (refer to Table 6) over their “outgroup” ( $\bar{x}=16.35$ ;  $SD=7.88$ ;  $SEM=0.74$ ) (refer to Table 6). However, the extent of this pattern of token allocation was on average lower than of the pattern of ethnocentrism demonstrated by group members. This is an interesting finding because it suggests that the participants themselves established separate categories within the inequality condition. The mean token allocation pattern by individuals and group members over the entire experiment is illustrated in Figure 7.

---

<sup>2</sup> The effect scores for the interaction between allocation target: tokens to ingroup\*individual/group and tokens to outgroup\*individual/group were identical thus only one set of statistics was presented to avoid repetition.

Table 5

*Effects and interactions for individuals versus group members under equal and unequal experimental conditions*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
<b>Main effects</b>				
Token Allocation Strategy (TAS)				
Token to ingroup (compared to outgroup)	14.02	3, 220	< <b>0.001</b>	0.16
Token to outgroup (compared to ingroup)	14.02	3, 220	< <b>0.001</b>	0.16
Token to self (compared to ingroup)	8.30	3, 220	< <b>0.001</b>	0.10
Group salience (Individual compared to Group)	42.25	2, 219	< <b>0.001</b>	0.28
Status (Equality compared to Inequality)	7.19	2, 219	< <b>0.001</b>	0.06
<b>Two-way interaction</b>				
TAS: Token to Ingroup*Group salience	34.74	1, 220	< <b>0.001</b>	0.14
TAS: Token to Outgroup*Group salience	34.74	1, 220	< <b>0.001</b>	0.14
TAS: Token to Self*Group salience	10.08	1, 220	< <b>0.001</b>	0.04
TAS: Token to Ingroup*Status (Equality/Inequality)	4.20	1, 220	<b>0.04</b>	0.020
TAS: Token to Outgroup*Status (Equality/Inequality)	4.20	1, 220	<b>0.04</b>	0.020
TAS: Token to Self*Status (Equality/Inequality)	14.43	1, 220	< <b>0.001</b>	0.06
Group salience*Status	1.60	2, 219	0.21	0.01
<b>Three-way interaction</b>				
TAS: Token to Ingroup*Group salience*Status (Equality/Inequality)	3.11	1, 220	0.08	0.01
TAS: Token to Outgroup*Group salience*Status (Equality/Inequality)	3.11	1, 220	0.08	0.01
TAS: Token to Self*Group salience*Status (Equality/Inequality)	0.38	1, 220	0.54	<0.001

In Tables 6, 7 and 9 it is apparent that the combined mean number of tokens does not sum to 40 as it should because each participant allocated one token for each of the 40 experiment rounds. Although the mean number of Tokens to Self is presented separately, these allocations have been included in the mean number of Tokens to Ingroup. This is because self-allocating is considered to be a measure of ethnocentrism given that these participants belong to the ingroup.



Table 6

*Token allocation means for individuals and group members*

Cell	Tokens to Ingroup				Tokens to Outgroup				Tokens to Self			
	Mean ( $\bar{x}$ )	SD	N	SEM	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM
Individual	23.65	7.88	112	0.74	16.35	7.88	112	0.74	10	11.26	112	1.06
Group	30.30	8.86	112	0.84	9.70	8.86	112	0.84	5.74	9.49	112	0.90

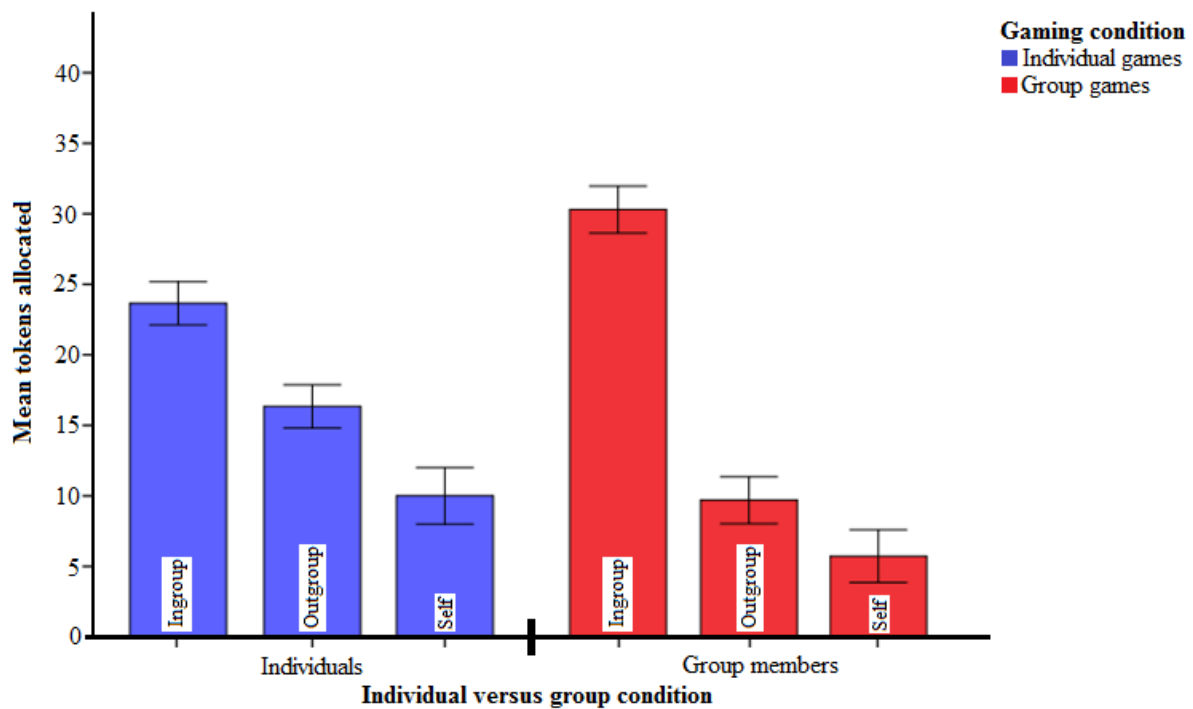


Figure 7. Mean tokens allocated to the ingroup, outgroup and self by individuals versus group members for the equality and inequality experimental conditions

Token Allocation Strategy\*Status (Equality/Inequality): Inequality Breeds Ethnocentrism

The results of the first generalised linear model indicated that beginning the game with equal or unequal status was statistically significant for the development of ethnocentrism ( $F(1,220) = 4.20$ ;  $p < 0.04$ ;  $\eta^2 = 0.02$ )<sup>3</sup> (refer to Table 5). Overall, participants who began the game with unequal status allocated their tokens to the ingroup ( $\bar{x} = 28.13$ ;  $SD = 8.12$ ;  $SEM = 0.77$ ) (refer

<sup>3</sup> The effect scores for the interaction between allocation target: tokens to ingroup\*equality/inequality were identical thus only one score was presented to avoid repetition.

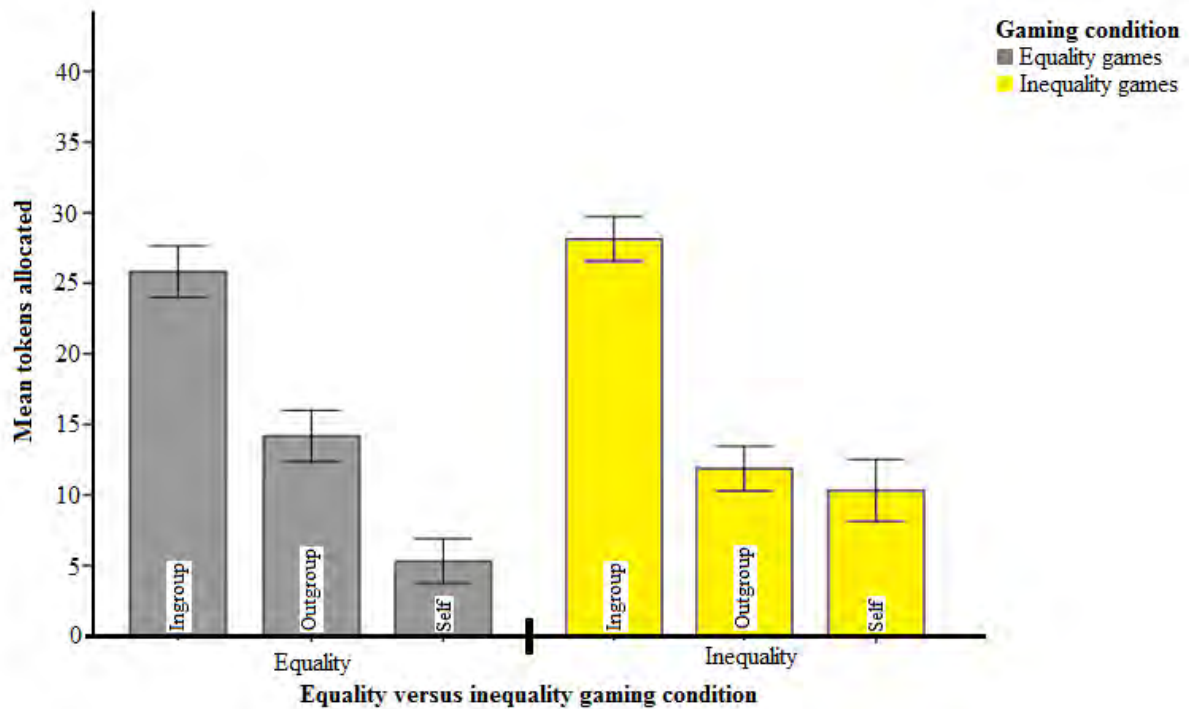
to Table 7) more often than those who began with equal status ( $\bar{x}$ =25.82; SD=8.62; SEM=0.81) (refer to Table 7). Those who began with equal status were slightly more generous toward the outgroup ( $\bar{x}$ =14.18; SD=8.62; SEM=0.81) (refer to Table 7) compared participants who began as unequal ( $\bar{x}$ =11.87; SD=8.12; SEM=0.77) (refer to Table 7).

Table 7

*Token allocation means for the equality and inequality experimental conditions*

Cell	Tokens to Ingroup				Tokens to Outgroup				Tokens to Self			
	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM
Equality	25.82	8.62	112	0.81	14.18	8.62	112	0.81	5.32	8.31	112	0.78
Inequality	28.13	8.12	112	0.77	11.87	8.12	112	0.77	10.42	12.44	112	1.18

Figure 6 illustrates the pattern of token allocation by participants in the equality condition versus participants in the inequality condition. The graph suggests that the pattern of token allocation between the equality and inequality conditions was fairly similar. However, given that the three way interaction among Token Allocation Strategy\*Group Salience\*Status (Equality/Inequality) was not statistically significant further conclusions regarding this relationship cannot be presented.



*Figure 8.* Mean tokens allocated to the ingroup, outgroup and self under equal versus unequal experimental conditions.

## GLM TYPE 2: THE EFFECT OF LOW AND HIGH STATUS ON THE PRODUCTION OF ETHNOCENTRISM

Manipulation of the participants’ low or high status positions at the start of the experiment may provide a possible explanation for the finding that individuals may exhibit ethnocentric behaviour under certain circumstances. Participants included in the individual experimental conditions should not have been able to distinguish between their “ingroup” and the “outgroup” as they had not been exposed to the grouping task and were presented as members of a single group. In order to further investigate this finding a second generalised linear model was used. To examine this result only the inequality VIAPPL dataset was selected for further analysis. A number of the main effects proved to be statistically significant suggesting that there was a significant difference in the number of tokens allocated to the ingroup compared to the outgroup ( $F(3, 108) = 14.02, p < 0.001, \eta^2 = 0.28$ ).

There was also a statistically significant difference between participants interacting as individuals versus those interacting as group members ( $F(2, 107) = 19.58, p < 0.001, \eta^2 = 0.27$ ). In addition, there was a statistically significant difference between participants who began the game with low status compared to those who began with high status ( $F(2, 107) = 19.44, p < 0.001, \eta^2 = 0.27$ ).

The two-way interaction results give further insight in the significance of the main effects. The results indicated that the interactions between Token Allocation Strategy\*Group salience and Token Allocation Strategy\*Status (Equality/Inequality) were statistically significant. These two-way interactions will be presented in detail below. The three-way interaction among Token Allocation Strategy\*Group Salience\*Status (Low/High) was not significant.

#### Token Allocation Strategy\*Group Salience: Under unequal conditions group members and individuals may exhibit ethnocentric behaviour

The results of the second generalised linear model again indicated that playing the game as a group member produced ethnocentric behaviour ( $F(1, 108) = 11.63, p < 0.001, \eta^2 = 0.20$ ) (refer to Table 8). Group members allocated tokens to their ingroup ( $\bar{x} = 30.47; SD = 6.37; SEM = 0.85$ ) (refer to Table 9) more often than to their outgroup ( $\bar{x} = 9.54; SD = 6.37; SEM = 0.85$ ) (refer to Table 9). In addition, individuals allocated tokens to their “ingroup” ( $\bar{x} = 23.65; SD = 7.88; SEM = 1.05$ ) (refer to Table 9) more often than to their “outgroup” ( $\bar{x} = 16.35; SD = 7.88; SEM = 1.05$ ) (refer to Table 9). However, the pattern of ethnocentrism among individuals was on average lower than the pattern displayed by group members. The mean token allocation pattern by individuals and group members included in the inequality experimental conditions is illustrated in Figure 7.

Table 8

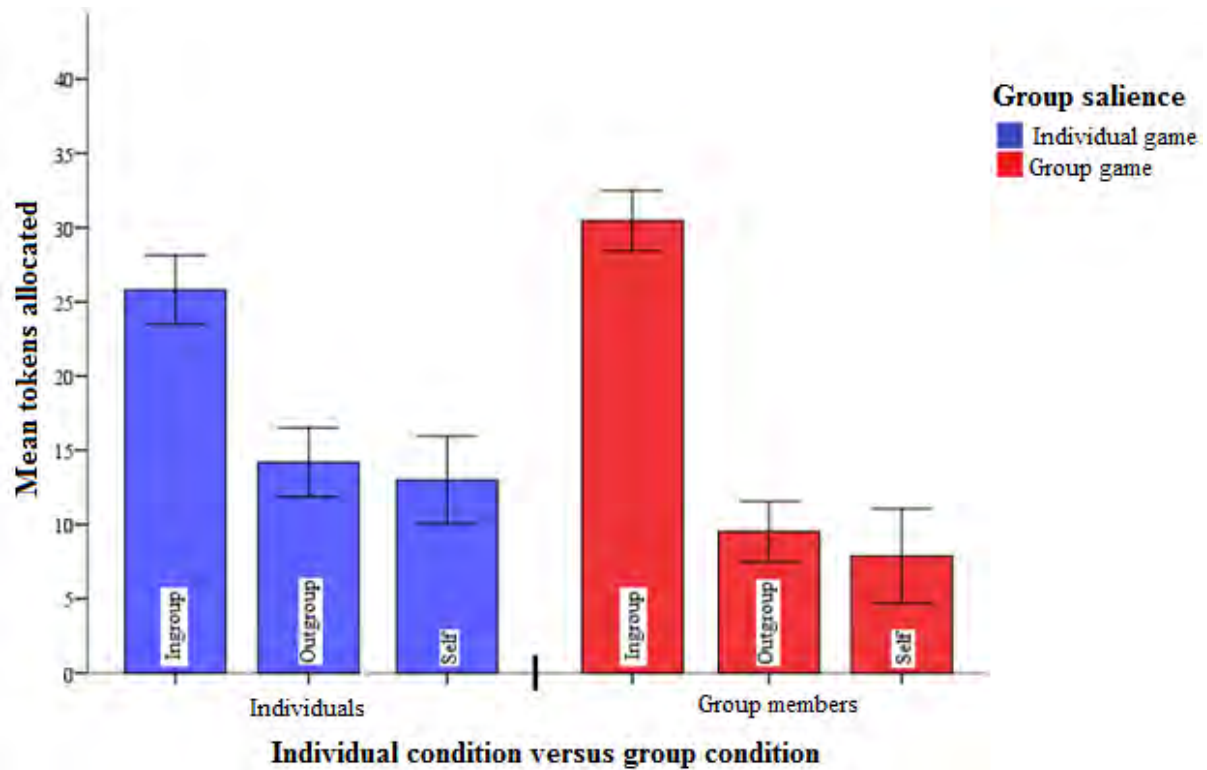
*Effects and interactions for individuals versus group members under low and high status experimental conditions*

Effect	F	df	Sig.	$\eta^2$
Main effects				
Token Allocation Strategy (TAS)				
Token to ingroup	14.24	3, 108	<0.001	0.28
Token to outgroup	14.24	3, 108	<0.001	0.28
Token to self	2.05	3, 108	0.07	0.06
Group salience (Individual/Group)	19.58	2, 107	<0.001	0.27
Status (Low/High)	19.44	2, 107	<0.001	0.27
Two-way interaction				
TAS: Token to Ingroup*Group salience	11.63	1, 108	<0.001	0.10
TAS: Token to Outgroup*Group salience	11.63	1, 108	<0.001	0.10
TAS: Token to Self*Group salience	5.49	1, 108	0.02	0.05
TAS: Token to Ingroup*Status (Low/High)	30.83	1, 108	<0.001	0.22
TAS: Token to Outgroup*Status (Low/High)	30.83	1, 108	<0.001	0.22
TAS: Token to Self*Status (Low/High)	0.70	1, 108	0.41	0.01
Group salience*Status (Low/High)	0.52	2, 107	0.60	0.01
Three-way interaction				
AS: Token to Ingroup*Group salience*Status(Low/High)	0.26	1, 108	0.61	<0.001
AS: Token to Outgroup* Group salience*Status (Low/High)	0.26	1, 108	0.61	<0.001
AS: Token to Self* Group salience*Status(Low/High)	1.03	1, 108	0.31	0.01

Table 9

*Token allocation means for individuals and group members included in the inequality experimental conditions*

Cell	Tokens to Ingroup				Tokens to Outgroup				Tokens to Self			
	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM
Individual	23.65	7.88	56	1.05	16.35	7.88	112	1.05	10.00	11.26	112	1.60
Group	30.47	6.37	56	0.85	9.54	6.37	112	0.85	5.74	9.49	112	0.90



*Figure 9. Mean tokens allocated to the ingroup, outgroup and self by individuals versus group members included in the inequality experimental conditions.*

Token allocation strategy\*status (low/high): low status people are more ethnocentric than high status people

The results of the second GLM indicated that status defined at the start of the game was important for the development of ethnocentric behaviour ( $F(1,108)=30.83$ ;  $p<0.001$ ;

$\eta^2=0.22$ )<sup>4</sup> (refer to Table 8). Participants who began the game with low status allocated their token to the ingroup ( $\bar{x}=31.93$ ;  $SD=7.01$ ;  $SEM=0.94$ ) (refer to Table 10) more often than those who began with a high status ( $\bar{x}=24.34$ ;  $SD=7.32$ ;  $SEM=0.98$ ) (refer to Table 10).

Those who began with low status were also less likely to allocate tokens to the outgroup ( $\bar{x}=8.07$ ;  $SD=7.01$ ;  $SEM=0.94$ ) (refer to Table 10) compared to their high status counterparts ( $\bar{x}=15.66$ ;  $SD=7.32$ ;  $SEM=0.98$ ) (refer to Table 10). Although, high status participants demonstrated greater generosity toward the outgroup the mean tokens allocated to the

<sup>4</sup> The effect scores for the interaction between allocation target: tokens to ingroup\*equality/inequality were identical thus only one score was presented.

outgroup never exceeded the mean tokens allocated to their ingroup. Figure 8 illustrates the pattern of mean token allocations by low and high status participants under the inequality condition. The mean token allocation pattern by low status and high status participants included in the inequality experimental conditions is illustrated in Figure 10.

Table 10

*Mean tokens allocated by low status and high status participants*

Cell	Tokens to Ingroup				Tokens to Outgroup				Tokens to Self			
	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM	Mean ( $\bar{x}$ )	SD	n	SEM
Low status	31.93	7.01	56	0.94	8.07	7.01	56	0.94	11.34	12.66	56	1.69
High status	24.34	7.32	56	0.98	15.66	7.32	56	0.98	9.52	10.81	56	1.44

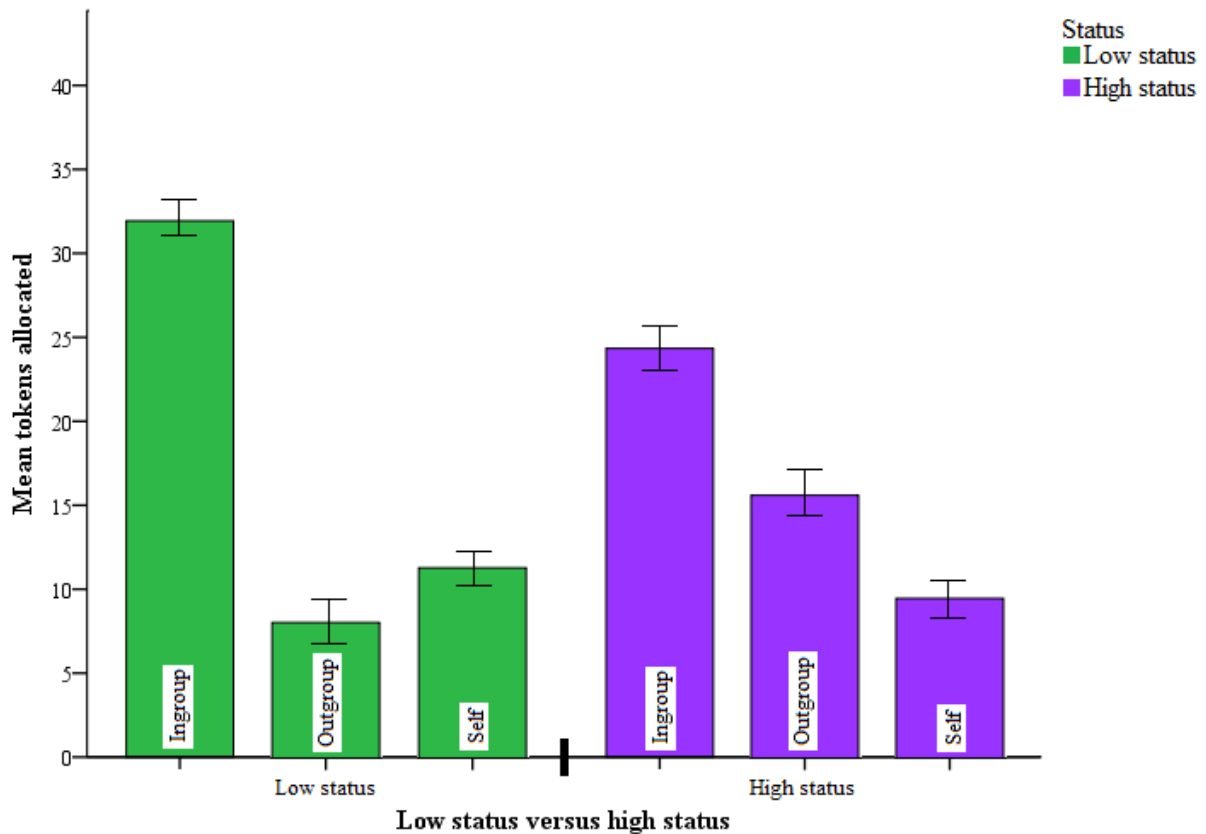


Figure 10. Mean tokens allocated to the ingroup, outgroup and self by low status versus high status participants.

*Are low status people more selfish than high status people? (Research question 2)*

The aim of the second research question was to investigate whether low status participants exhibited a higher level of selfish behaviour compared to high status participants. The results of the analysis indicated that low status participants were not statistically significantly more selfish than their high status counterparts (refer to Table 8). However the results of the first GLM indicated that individuals appear to be significantly more selfish than group members ( $F(1, 220) = 10.08, p < 0.001, \text{partial } \eta^2 = 0.04$ ) (refer to Table 5). Individuals tended to self-allocate ( $\bar{x} = 10.00; SD = 11.26; SEM = 1.60$ ) (refer to Table 6) tokens almost twice as often as group members ( $\bar{x} = 5.74; SD = 9.49; SEM = 0.90$ ) (refer to Table 6). The pattern of self-allocation by individuals versus group members is illustrated in Figure 7.

In addition, participants who began the game with an unequal token balance tended to self-allocate a statistically significantly higher number of tokens than those who began with an equal number of tokens ( $F(1, 220) = 14.43, p < 0.0001, \text{partial } \eta^2 = 0.06$ ) (refer to Table 5). Under unequal conditions participants again tended to self-allocate ( $\bar{x} = 10.42; SD = 12.44; SEM = 1.18$ ) almost twice as often as those who began with an equal token balance ( $\bar{x} = 5.315; SD = 8.31; SEM = 0.78$ ) (refer to Table 6).

*Psychometric Data*

The data collected using the pre- and post-test questionnaire was analysed using repeated measures analysis of variance (ANOVA) tests. The aim of the analysis was to determine whether interaction through token exchanges (dependent variable) altered the participants perceptions of *ingroup identification*, situational *legitimacy* and the *stability* of initial status positions in the experimental condition from the pre-test assessment to the post-test assessment. Time i.e. the pre- and post-test assessments and group salience were used as the



independent variables and token allocation was used as the dependent variable. The questionnaire's *competition* subscale was excluded as it did not have a satisfactory reliability score.

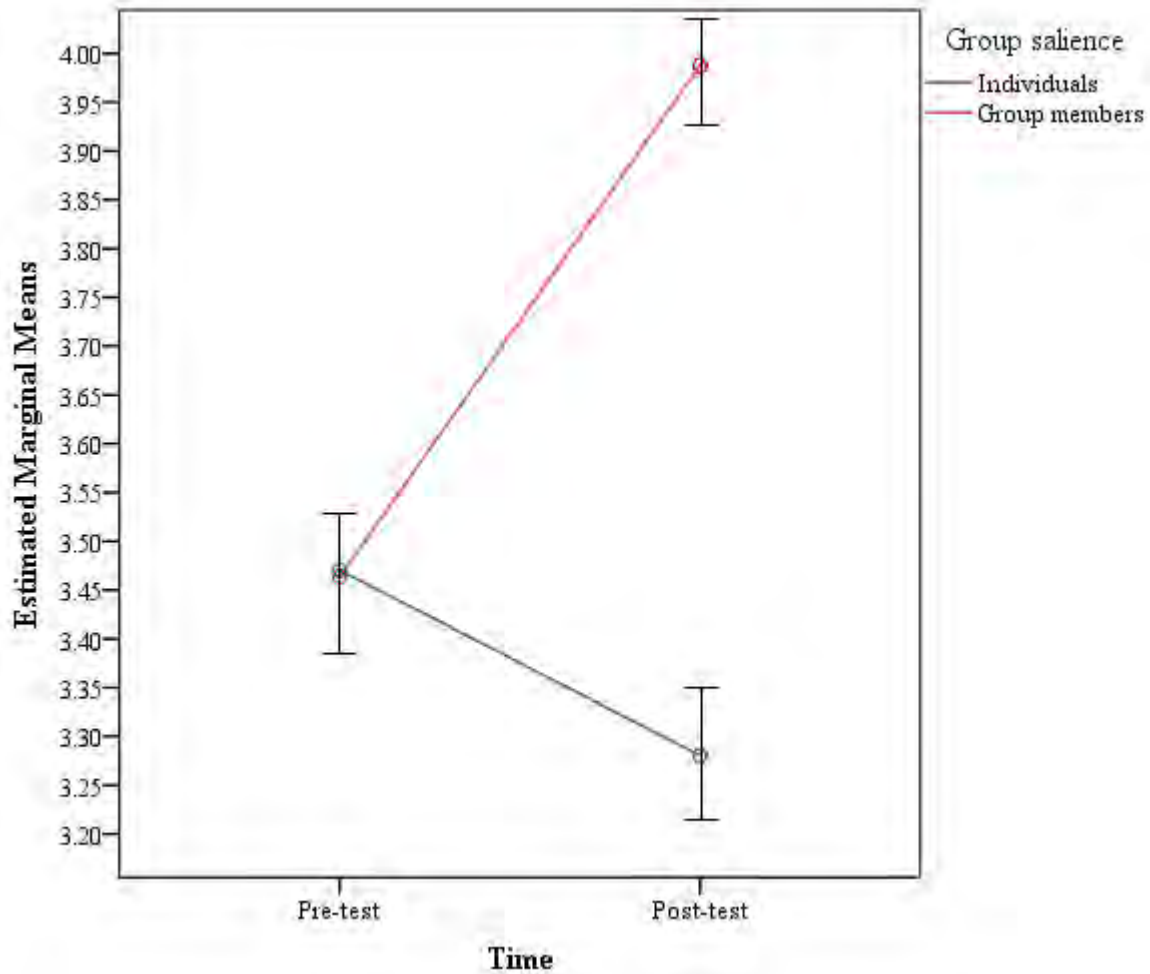
*Ingroup Identification*

Individuals ( $\bar{x}$ =3.47; SD=1.41; SEM=0.14) and group members ( $\bar{x}$ =3.46; SD=1.54; SEM=0.15) reported approximately equal levels of ingroup identification at the pre-test assessment (refer to Table 11). However, at the post-test assessment, group members reported a higher level of ingroup identification ( $\bar{x}$ =3.99; SD=1.76; SEM=0.17) whereas individuals reported a lower level of ingroup identification ( $\bar{x}$ =3.28; SD=1.64; SEM=0.17) (refer to Table 11) compared to their pre-test measure. This result is illustrated in Figure 11.

Table 11

*Mean ingroup identification scores for the pre-and post-test questionnaire*

Questionnaire	Ingroup Identification			
	Mean ( $\bar{x}$ )	SD	n	SEM
<b>Pre-test</b>	<b>3.47</b>	<b>1.48</b>	<b>217</b>	<b>0.10</b>
Individuals	3.47	1.41	107	0.14
Group members	3.46	1.54	110	0.15
<b>Post-test</b>	<b>3.64</b>	<b>1.74</b>	<b>217</b>	<b>0.12</b>
Individuals	3.20	1.64	107	0.16
Group members	3.99	1.76	110	0.17



*Figure 11. Levels of ingroup identification for individuals and group members at the pre- and post-test time points.*

The results of the repeated measure ANOVA indicated that participants' level of ingroup identification was statistically significantly different between time points for individuals and group members ( $F(1, 215) = 9.29, p < 0.001, \eta^2 = 0.04$ ) (refer to Table 12).

The level of ingroup identification amongst participants under the equality and inequality experiment conditions was also analysed. Pre- and post-test levels of ingroup identification under the equality and inequality experimental condition was not found to be statistically significant (refer to Table 13). In addition, the level of ingroup identification reported by low

status and high status participants did not prove to be statistically significantly different at the pre- and post-test time points either (refer to Table 14).

Table 12

*Pre- and post-test levels of ingroup identification for individuals versus group members*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	2.03	1	3.03	0.16	0.01
Group salience (Individual/Group)	12.98	1	895.88	<0.001	0.91
Two-way interaction					
Time*Group salience (Individual/Group)	9.29	1	13.84	<0.001	0.04
Error (Time)		215	1.49		

Table 13

*Pre- and post-test levels of ingroup identification for equal status and unequal status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	2.15	1	3.33	0.14	0.01
Status (Equality/Inequality)	0.23	1	16.62	0.64	<0.001
Two-way interaction					
Time*Status (Equality/Inequality)	0.67	1	1.04	0.41	<0.001
Error (Time)		215	1.55		

Table 14

*Pre- and post-test levels of ingroup identification for low status and high status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	2.28	1	3.87	0.13	0.02
Status (Low/High)	14.15	1	765.55	<0.001	0.24
Two-way interaction					
Time*Status (Low/High)	0.10	1	0.16	0.76	<0.001
Error (Time)		103	1.69		

### *Legitimacy*

The results of the analysis indicated that participants' perception of the legitimacy of the status positions measured at the pre- and post-test time points was not statistically significantly different for any of the experimental manipulations (refer to tables 15-17). Thus, further analysis of this scale was not possible.

Table 15

*Pre- and post-test levels of legitimacy for individuals versus group members*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.38	1	0.39	0.54	<0.001
Group salience (Individual/Group)	18.06	1	1268.38	<b>&lt;0.001</b>	0.12
Two-way interaction					
Time*Group salience (Individual/Group)	1.95	1	2.01	0.16	0.01
Error (Time)		215	1.03		

Table 16

*Pre- and post-test levels of legitimacy for equal status and unequal status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.30	1	0.31	0.58	<0.001
Status (Equality/Inequality)	3.38	1	291.98	0.07	0.03
Two-way interaction					
Time*Status (Equality/Inequality)	2.14	1	2.21	0.15	0.10
Error (Time)		215	1.03		

Table 17

*Pre- and post-test levels of legitimacy for low status and high status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.44	1	0.41	0.51	<0.001
Status (Low/High)	16.71	1	950.91	<0.001	0.29
Two-way interaction					
Time*Status (Low/High)	0.05	1	0.05	0.83	<0.001
Error (Time)		103	0.93		

### *Stability*

The results of the analysis indicated that participants' perception of the stability of the status positions in the experimental condition measured at the pre- and post-test time points was not statistically significantly different for any of the experimental manipulations (refer to tables 18-20). Thus, further analysis of this scale was not possible.

Table 18

*Pre- and post-test levels of stability for individuals versus group members*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.14	1	0.13	0.71	<0.001
Group salience (Individual/Group)	10.77	1	881.33	<0.001	0.07
Two-way interaction					
Time*Group salience (Individual/Group)	0.36	1	0.35	0.55	<0.001
Error (Time)		215	0.95		

Table 19

*Pre- and post-test levels of stability for equal status and unequal status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.16	1	0.15	0.69	<0.001
Status (Equality/Inequality)	4.38	1	404.34	0.04	0.03
Two-way interaction					
Time*Status (Equality/Inequality)	0.57	1	0.54	0.45	<0.001
Error (Time)		215	0.95		

Table 20

*Pre- and post-test levels of stability for low status and high status participants*

<b>Effect</b>	<b>F</b>	<b>df</b>	<b>Mean square</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Main effects					
Time (Pre-test compared to post-test)	0.51	1	0.57	0.48	0.01
Status (Low/High)	18.83	1	1125.98	<0.001	0.26
Two-way interaction					
Time*Status (Low/High)	0.29	1	0.33	0.59	<0.001
Error (Time)		103	1.15		

In summary, Group Salience and Equal or Unequal Status appeared to be the most important variables for the production of ethnocentric and selfish behaviour. The participants perceived ingroup identification proved to be the only psychometric scale that produced as significant difference following interaction in the experiment. The results presented in this chapter will be discussed in the chapter six.

## Chapter 6: Discussion

The results of the experiment yielded five statistically significant findings, including (i) identity as a group member is the most important variable in determining ethnocentric behaviour; (ii) low status participants favour their ingroup more than high status group members; (iii) inequality increases tendency to be ethnocentric; and (iv) there is no difference in selfishness between low and high status participants; but (v) individuals were significantly more selfish than group members. Although these findings have been observed in previous research, the present study contributes to the existing body of knowledge by examining ethnocentrism through the process of interaction. Data collected using the VIAPPL demonstrated how ethnocentrism unfolds as participants interact in real time. This provided a more realistic representation of the phenomenon as ethnocentrism is produced by participants interacting through token exchanges unlike traditional paper-and-pencil methods where participants “interact” in isolation. In contrast to traditional methods of studying ethnocentrism, participants in the present study were able to base their token exchanges on the actions and reactions of their fellow participants.

### *Group members are more ethnocentric than individuals*

It is unsurprising that the results indicated that participants who interacted as group members exhibited a higher rate of ethnocentric behaviour given the large body of literature that supports this phenomenon (Bourhis et al., 1994; Brewer, 1979; Durrheim et al., 2014; Hammond & Axelrod, 2006; Hogg & Abrams, 1990; Tajfel, 1982; Tajfel & Turner, 1979, 1986). In addition, the ingroup identification scale was the only scale that produced a statistically significant pre- and post-test change in attitudes. This findings supports the original minimal group studies’ theory that categorization into groups and internalization of group identity is essential for ethnocentrism to emerge (Brewer, 1979; Tajfel et al., 1971;

Tajfel & Turner, 1986). While this finding is important because the absence of ethnocentric behaviour among group members in a minimal group situation would have been puzzling, the primary focus of the present chapter is to discuss the results in relation to the research questions and literature reviewed in chapter two.

### *Ethnocentric Low Status Groups*

The finding that low status groups in the experiment tended to exhibit higher rates of ethnocentric behaviour is interesting given the strong evidence that supports the social identity theory that high status groups favour the ingroup more than their low status counterparts because their group's high status provides positive distinctiveness (Blackburn, 1999; Bourhis & Gagnon, 2003; Bourhis et al., 1994; Brewer, 1979; Commins & Lockwood, 1979; Tajfel & Turner, 1986; Turner et al., 1979). Further, intergroup research examining ethnocentrism among low status group has even suggested that these groups often tend to engage in outgroup favouritism (Ellemers et al., 1993; Frederico, 1998; Lei & Vesely, 2010; Nadler & Halabi, 2006; Tajfel & Turner, 1979). Given that the legitimacy and stability psychometric scales did not prove to be statistically significant it is possible that low status participants did not accept the status differences among participants as legitimate or stable. Thus, it is possible that the low status groups did not internalise their low status and engaged in social comparisons which lead them to exhibit ethnocentric behaviour (Brunner & Sandner, 2012; Tajfel, 1982). However, it is equally possible that the higher rate of ethnocentric behaviour among low status groups is actually an artefact of the high status groups' generosity toward their low status counterparts. Nadler and Halabi (2006) suggest that high status groups often demonstrate their superior status through helping lower status groups.



In contrast, it is also possible that the finding that high status groups demonstrated greater outgroup favouritism than low status groups is actually unfounded given that the data was analysed and interpreted using absolute token numbers instead of relative proportions of tokens allocated by participants. For instance, a low status participant who began the experiment with only 10 tokens and allocated those to members of the outgroup would appear to be less generous than a high status participant who began with 30 tokens but allocated the same number of tokens to a member of the outgroup. In reality the participant with fewer tokens who allocated a greater proportion of these tokens to members of the outgroup would be considered to demonstrate a greater tendency toward outgroup favouritism than his/her high status counter part who allocate the same absolute number of tokens. Thus, a further analysis on the data using statistical methods to analyse the relative proportion of tokens allocated by participants with different status positions would provide more accurate results relating to this phenomenon.

### *Inequality Breeds Ethnocentrism*

The results of the experiment indicate that participants in the inequality conditions demonstrated higher rates of ingroup favouritism than their equal status counterparts. Blackburn (1999) suggests that society shapes the individuals within its system and an unequal society creates unequal groups. Once systematic inequalities become entrenched in the social system the differences that stem from this inequality become culturally sustained making it very difficult for unequal members of society to be assimilated in equal groups. Inequality creates difference which leads to the *us* and *them* distinction that underlies ethnocentrism. These differences often lead to power differentials between groups and Guinote (2007) asserts that power effects the way people treat each other. Realistic conflict theory proposed that competition for scarce resources leads to intergroup conflict which

strengthens group cohesion and loyalty to the group and could account for ethnocentric behaviour (Sherif, 1937, 1966; Sherif et al., 1961). However, it is difficult to argue for realistic conflict theory's position in this instance because the competition subscale in the psychometric scales had to be excluded due to poor reliability. Thus, it cannot be concluded that participants were motivated by a sense of competition or conflict when engaging in ethnocentric behaviour. In the absence of evidence to suggest that ethnocentrism produced under unequal conditions is brought on by competition it is acceptable to contend that the difference created by visible categories separating the equal and unequal could have elicited the ethnocentric behaviour that participants demonstrated (Tajfel et al., 1971).

*Selfishness is not a smart strategy in groups*

The original minimal group experiments purposefully excluded self-allocation in order to study the ethnocentrism phenomenon without introducing personal greed. While this allowed for a clearer demonstration of ingroup favouritism, the possibility that ingroup favouritism is merely a facet of selfishness could not be rejected due the fact self-allocation was excluded. The findings of the present study suggest that status does not effect selfish behaviour and both low, equal and high status participants exhibited relatively similar levels of selfishness. However, selfishness among individuals was significantly higher than group members although it never exceeded the ethnocentric strategy for token allocation. Given the purposeful exclusion of personal greed as a motivation for ingroup favouritism social identity theory is not well suited to explaining the current result. However, there is extensive evolutionary psychology literature documenting the effect of selfish behaviour in interaction (Hammond & Axelrod, 2006; Shultz et al., 2008; Turner & Bourhis, 1996). Based on findings in various game theory experiments documenting allocation behaviour, ethnocentric strategies and humanitarian strategies tend to dominate (Hammond & Axelrod, 2006).

Turner and Bourhis (1996) suggest that individuals tend to adopt group interests to the extent that they identify with their ingroup. Therefore, it makes sense that individuals would engage in more selfish behaviour than group members because individuals do have a group that they can identify with.

Game theory also provides a rationale for why selfishness through self-allocation never exceeds ethnocentric strategies or humanitarian strategies. For instance, in a prisoner's dilemma game or artificial world game selfish strategies such as defecting are often responded to with punishment. Although, selfish individuals may reap initial rewards these are short lived as selfish individuals tend to be punished by the other individuals in the social system through alienation once they are labelled as selfish (Shultz et al., 2008). Humanitarian strategies which involve cooperation with both the ingroup and outgroup is a more logical strategy because it increases the potential for reciprocation by others (Shultz et al., 2008). However, a humanitarian strategy does not appear to benefit a person over time as the existence of selfish people within a social system could result in the humanitarian's resources being depleted due to limited reciprocation. Thus, ethnocentrism appears to be the most logical allocation strategy because it is in the best interests of the group. By consistently allocating resources to the ingroup, the ingroup is enhanced and provides a network of group members to cooperate with (Shultz et al., 2008).

## Chapter 7: Limitations

The present study possessed a few minor limitations. The most obvious limitation pertains to the sample recruited for the experiment. As Henrich et al., (2010) noted university students are an over sampled population. In addition, the use of non-probability sample methods may have reduced the external validity of the study. The validity of the study may have been further compromised due to the instruments that were used in the experiment. Both the pre- and post-test questionnaire and give-and-get token allocation game are fairly new instruments that still require further research to establish their reliability and validity. It is unclear whether the results of the experiment truly reflect ingroup favouritism or hostility to the outgroup given that participants allocate their tokens without justifying their motivation for their allocation decisions. Most importantly, the study used absolute numbers of tokens instead of relative proportions to indicate ethnocentrism and selfishness even under the status conditions where some participants began with fewer tokens than others. An analysis using statistical techniques that considered relative proportions may have strengthened or even reversed the results that were reported. Lastly, given the arrangement of the avatars in the arena and the absolute number of tokens available for distribution one could argue that the experimental condition produced circular data. According to Cox (2001, p. 1) “the fundamental property of circular data is that the beginning and the end of scale coincide: for example,  $0^\circ = 360^\circ$ ”. Analysing circular data using linear models could produce invalid results, however there is no major statistical language that provides support for circular data thus using well-established linear models was determined to be the best option for the present study as this would allow the study to be used for comparison with similar studies in the growing body of VIAPPL literature.

## **Chapter 8: Areas for further research**

Allocating tokens to the ingroup appears to suggest ingroup favouritism. However, it is possible that more can be learnt about ethnocentrism by studying the behaviour of participants who have the option to take tokens away from ingroup and outgroup members. This would provide an opportunity to examine whether ethnocentrism in a minimal group situation is a reflection of pure ingroup favouritism or outgroup discrimination. Further, examining the data using statistical methods that analyse the relative proportion of tokens that are distributed under unequal conditions could provide a new perspective on the data generated by similar ethnocentric studies.

## **Chapter 9: Conclusion**

The present study successfully replicated a minimal group situation using a novel instrument that allowed participants to engage in dynamic interaction to study ethnocentrism. The findings of this study support existing ethnocentric literature built on the social identity theory principle that categorization leads to ethnocentric behaviour. It was surprising that low status participants appeared to hold greater ethnocentric attitudes than high status participants. However, it is possible that the reduced ethnocentrism among high status participants was produced as a result of their humanitarian activities toward their lower status counterparts. In addition, as noted throughout the preceding chapters the results of the study should be interpreted with caution given that the data was analysed using absolute token numbers as opposed to the relative proportion of tokens distributed under unequal status conditions. Further, the results of the study indicated that ethnocentrism is in fact a group orientated phenomenon that does not appear to be motivated by personal greed given that participants consistently chose to act in the best interests of the group rather than gain personal wealth for themselves. In conclusion, and most importantly ethnocentrism appears to be fuelled by inequality. Under equal conditions, divisions between groups and individuals are apparent which appears to foster more cooperative behaviour. However, inequality emphasises difference which may lead people to stereotype and act upon these stereotypes more than they should. By engaging in ethnocentric behaviour humans stop seeing people for who they are and instead may begin to engage based on homogenous group identities which are accentuated by status differences.

## References

- Adorno, T., Frenkel-Brunswik, E., Levinson, P., & Sanford, R. (1950). *The authoritarian personality*. New York: Harper & Brothers.
- Allport, F. (1962). A structuronomic conception of behavior: Individual and collective: I. Structural theory and the master problem of social psychology. *The Journal of Abnormal and Social Psychology*, 64(1), 3-30.
- Bettencourt, B., Dorr, N., Charlton, K., & Hume, D. (2001). Status differences and in-group bias: A meta-analytic examination of the effects of status stability, status legitimacy, and group permeability. *Psychological Bulletin*, 127(4), 520-542.
- Billig, M. (1976). *Social psychology and intergroup relations*. London: Academic Press.
- Bizumic, B. (2014). Who coined the concept of ethnocentrism? A brief report. *Journal of Social and Political Psychology*, 2(1), 3-10.
- Bizumic, B., Duckitt, J., Popadic, D., Dru, V., & Krauss, S. (2009). A cross-cultural investigation into a reconceptualization of ethnocentrism. *European Journal of Social Psychology*, 39(6), 871-899.
- Blackburn, R. (1999). Understanding social inequality. *The International Journal of Sociology and Social Policy*, 9(11), 1-21.
- Blackburn, R. (2008). What is social inequality. *International Journal of Sociology and Social Policy*, 28(7/8), 250-259.
- Bourhis, R., & Gagnon, A. (2003). Social orientations in the minimal group paradigm. In R. Brown, & S. Gaertner (Eds.), *Intergroup processes* (pp. 89-112). Oxford: Blackwell.
- Bourhis, R., Sachdev, I., & Gagnon, A. (1994). Intergroup research with the Tajfel matrices. In *The psychology of prejudice: The Ontario symposium* (Vol. 7, pp. 209-232). Ontario: Erlbaum Mahwah.

- Brewer, M. (1979). Ingroup bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin*, *86*, 307-324.
- Brunner, M., & Sandner, K. (2012). Social comparison, group composition, and incentive provision. *International Journal of Game Theory*, *41*, 565-602.
- Campbell, D. (1965). Ethnocentric and other altruistic motives. In D. Levine (Ed.), *Nabraska symposium on motivation* (pp. 283-311). Lincoln: University of Nabraska Press.
- Clark, K., & Clark, M. (1939). The development of consciousness of self and the emergence of racial identification in Negro preschool children. *The Journal of Social Psychology*, *10*(4), 591-599.
- Commins, B., & Lockwood, J. (1979). The effects of status differences, favoured treatment and equity on intergroup comparisons. *European Journal of Social Psychology*, *9*, 281-289.
- Condor. (2003). "The least doubtful promise for the future?": The short history of Tajfel's "sociopsychological" approach to laboratory experimentation. In J. Laszlo, & W. Wagner (Eds.), *Theories and controversies in societal psychology* (pp. 153-179). Budapest: Új Mandátum.
- Cox, N. (2001). *Analysing circular data in Stata*. Boston: NASUG.
- Diehl, M. (1990). The minimal group paradigm: Theoretical explanations and empirical findings. *European Review of Social Psychology*, *1*(1), 263-292.
- Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intergroup variability as a function of group status and identification. *Journal of Experimental Social Psychology*, *31*, 617-626.
- Durrheim, K., Quayle, M., Titlestad, K., & Tooke, L. (2014). *The evolution of ingroup bias in a dynamic experimental environment: Toward a social psychology of movement*.



- Retrieved April 1, 2016, from VIAPPL.org: [http://viappl.org/wp/wp-content/uploads/2014/11/VIAPPL\\_science\\_of\\_movement\\_v6\\_web.pdf](http://viappl.org/wp/wp-content/uploads/2014/11/VIAPPL_science_of_movement_v6_web.pdf)
- Eldakar, O., & Wilson, D. (2008). Selfishness as second-order altruism. *Proceedings of the National Academy of Sciences*, *105*(19), 6982-6986.
- Ellemers, N., Wilke, H., & van Kippenberg, A. (1993). Effects of legitimacy of low group or individual status on individual and collective status-enhancement strategies. *Journal of Personality and Social Psychology*, *64*(5), 766-778.
- Emanuel, E., Abdoler, E., & Stunkel, L. (2014). *Research ethics: How to treat people who participate in research*. London: National Institutes of Health.
- Fox, J. (2015). *Applied regression analysis and generalized linear models*. London: Sage Publications.
- Frederico, C. (1998). The interactive effects of social dominance orientation, group status and perceived stability on favouritism for high status groups. *Group Processes and Intergroup Relations*, *2*(2), 119-143.
- Gray, B. (2011). From exile of citizens to deportation of non-citizens: Ancient Greece as a mirror to illuminate a modern transition. *Citizenship Studies*, *15*(5), 565-582.
- Guinote, A. (2007). Behaviour variability and the situated focus theory of power. *European review of social psychology*, *18*(1), 256-295.
- Gumplowicz, L. (1881). *Legal state and socialism*. Innsbruck: Wagner'sche Universitäts-Buchhandlung.
- Gumplowicz, L. (1883). *The racial struggle: Sociological studies*. Innsbruck: Wagner'sche Universitäts-Buchhandlung.
- Gumplowicz, L. (1887). *System of sociology*. Warsaw: Spolka Nakladowa.
- Gumplowicz, L. (1892). *The sociological idea of state*. Graz: Leuschner & Lubensky.
- Gumplowicz, L. (1895). Social illusions. *Neue Deutsche Rundschau*, *6*, 1-11.

- Hammond, R., & Axelrod, R. (2006). The evolution of ethnocentrism . *Journal of Conflict Resolution, 50*(6), 926-936.
- Henrich, J., Heine, S., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 61-83.
- Hirschman, A. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states* (Vol. 25). Boston: Harvard University Press.
- Hogg, M., & Abrams, D. (1990). *Social identifications*. London: Routledge.
- Horowitz, R. (1939). Racial aspects of self-identification in nursery school children. *The Journal of Psychology, 7*(1), 91-99.
- Hraba, J., & Grant, G. (1970). Black is beautiful: A reexamination of racial preference and identification. *Journal of personality and social psychology, 16*(3), 398.
- Hughes, M., Kiecolt, K., Keith, V., & Demo, D. (2015). Racial identity and well-being among African Americans. *Social Psychology Quarterly, 78*(1), 25-48.
- Huizingh, E. (2007). *Applied statistics with SPSS*. New York: Sage.
- Hunter, J., & Schmidt, F. (1990). Dichotomization of continuous variables: The implications of meta-analysis. *Journal of Applied Psychology, 75*(3), 334-349.
- Ifekwunigwe, J. (Ed.). (2015). *Mixed race studies: A reader*. Abingdon: Routeledge.
- Jahoda, G., & Krewer, B. (1997). History of cross-cultural and cultural psychology. In J. Berry, Y. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology* (2nd ed., Vol. 1, pp. 1-42). Boston: Allyn and Bacon.
- Kerbo, H. (2003). *Social stratification and inequality: Class conflict in historical and global perspective*. London: McGraw-Hill.
- Lachenicht, L. (2016). *Thesis examination report*. Pietermaritzburg: University of KwaZulu-Natal.

- Lei, V., & Vesely, F. (2010). In-group versus out-group trust: The impact of income inequality. *Southern Economic Journal*, 76(4), 1049-1063.
- Lowery, B., Unzueta, M., Knowles, E., & Goff, P. (2006). Concern for the in-group and opposition to affirmative action. *Journal of Personality and Social Psychology*, 90(6), 961-974.
- McGee, W. J. (1900). *Primitive numbers*. Annual Report of the Bureau of American Ethnology (1897–1898).
- Mummendey, A., Kessler, T., Klink, A., & Mielke, R. (1999). Strategies to cope with negative social identity: Predictions by social identity theory and relative deprivation theory. *Journal of Personality and Social Psychology*, 76, 229–245.
- Nadler, A., & Halabi, S. (2006). Intergroup helping at status relations: Effects of status stability, identification, and type of help on receptivity to high-status group's help. *Journal of Personality and Social Psychology*, 91(1), 97-110.
- Nezlek, J. (2008). An introduction to multilevel modeling for social and personality psychology. *Social and Personality Psychology Compass*, 2(2), 842-860.
- Obst, P., White, K., Mayor, K., & Baker, R. (2011). Social identification dimensions as mediators of the effect of prototypicality of intergroup behaviours. *Psychology*, 2(5), 426-432.
- Overbeck, J. R., Jost, J., Mosso, C., & Flizik, A. (2004). Resistant versus acquiescent responses to ingroup inferiority as a function of social dominance orientation in the USA and Italy. *Group processes and Intergroup Relations*, 7(1), 35-54.
- Paris, W., Bristol, C., Oregon, K., & Stirling, A. (1972). An experimental investigation into the formation of intergroup representations. *European Journal of Social Psychology*, 2(2), 202-204.

- Peugh, J., & Enders, C. (2005). Using the SPSS mixed procedure to fit cross-sectional and longitudinal multilevel models. *Educational and Psychological Measurement, 65*(5), 717-741.
- Postmes, T., Haslam, S., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British Journal of Social Psychology, 52*(4), 597-617.
- Rabbie, J., & Horwitz, M. (1969). Arousal of ingroup-outgroup bias by chance win or loss. *Journal of Personality and Social Psychology, 13*, 269-277.
- Rubin, M., Badea, C., & Jetten, J. (2013). Low status groups show in-group favouritism to compensate for their low status and compete for high status. *Group Processes and Intergroup Relations, XX*(X), 1-14.
- Sachdev, L., & Bourhis, R. (1987). Status differentials and intergroup behaviours. *European Journal of Social Psychology, 17*, 277-293.
- Sachdev, L., & Bourhis, R. (1991). Power and status differentials in minority and majority group relations. *European Journal of Social Psychology, 21*, 1-24.
- Salkind, N. (2012). *Statistics for people who (think they) hate statistics: Excel 2010 edition*. London: Sage.
- Sherif, M. (1937). An experimental approach to the study of attitudes. *Sociometry, 1*(1/2), 90-98.
- Sherif, M. (1966). *In common predicament: Social psychology of intergroup conflict and cooperation*. Boston: Houghton Mifflin.
- Sherif, M., & Sherif, C. (1953). *Groups in harmony and tension: An integration of studies on intergroup behaviour*. Oxford: Harper and Brothers.
- Sherif, M., Harvey, O., White, B., Wood, W., & Sherif, C. (1961). *Intergroup conflict and cooperation: The robbers cave experiment*. Norman: University of Oklahoma Book Exchange.

- Shultz, T., Hartshorn, M., & Hammond, R. (2008). Stages in the evolution of ethnocentrism. *Proceedings of the 30th annual conference of the cognitive science society*, 1244-1249.
- Skevington, S., & Baker, D. (Eds.). (1989). *The social identity of women*. London: Sage.
- Sumner, W. (1906). *Folkways*. Boston: Ginn and Company.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, 33, 1-39.
- Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Belmont: Brooks/Cole Publishing Company.
- Tajfel, H., & Turner, J. (1986). The social identity theory of intergroup behavior. In S. Worchel, & W. Austin (Eds.), *Psychology of intergroup relations* (2nd ed., pp. 7-24). Chicago: Nelson-Hall.
- Tajfel, H., & Turner, J. (1986). The social identity theory of inter-group behavior. In S. Worchel, & W. Austin (Eds.), *The psychology of intergroup relations* (pp. 7-24). Chicago: Nelson-Hall.
- Tajfel, H., Billig, M., Bundy, R., & Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology*, 1(2), 149-178.
- Terry, D., & O'Brien, A. (2001). Status, legitimacy, and ingroup bias in the context of an organizational merger. *Group Processes and Intergroup Relations*, 43(3), 271-289.
- Tomlinson, J. (2001). *Cultural imperialism: A critical introduction*. London: A&C Black.
- Turner, J., & Bourhis, R. (1996). Social identity, interdependence and the social group: A reply to Rabbie et al. In W. Robinson (Ed.), *Social groups and identities: Developing the legacy of Henry Tajfel* (pp. 25-63). Oxford: Butterworth/Heinemann.

- Turner, J., Brown, R., & Tajfel, H. (1979). Social comparisons and group interests in ingroup favouritism. *European Journal of Social Psychology*, *9*, 187-204.
- Tyerman, A., & Spencer, C. (1983). A critical test of the Sherifs' Robber's Cave experiments intergroup competition and cooperation between groups of well-acquainted individuals. *Small Group Research*, *14*(4), 515-531.
- United States Declaration of Independence. (1776). *Paragraph two*. Philadelphia: The Continental Congress.
- Watson, G. (1970). *Passing for White: a study of racial assimilation in a South African school* (Vol. 102). London: Tavistock Publications.
- Weber, U., Mummendey, A., & Waldzus, S. (2002). Perceived legitimacy of intergroup status differences: Its prediction by relative ingroup prototypicality. *European Journal of Social Psychology*, *32*(4), 449-470.
- West, B., Welch, K., & Galecki, A. (2014). *Linear mixed models: a practical guide using statistical software*. Boca Raton: CRC Press.
- Worthington, R., Savoy, H., Dillon, F., & Vernaglia, E. (2002). Heterosexual identity development a multidimensional model of individual and social identity. *The Counseling Psychologist*, *30*(4), 496-531.

## Appendix 1.1: Pre- and Post-test Questionnaire (Individual Condition)

### *Demographic Items*

1. State your age

--

2. State your gender

Female	Male
--------	------

3. State your race

Black	Coloured	Indian	White	Other
-------	----------	--------	-------	-------

### *Exploratory Items*

Use the 7 point Likert scale below to indicate your opinion regarding each of the items listed below

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

### ***Ingroup Identification***

1. I identify with other members of the group as a whole
2. I have a sense of belonging to the group as a whole
3. I feel strong ties with the group as a whole

### ***Legitimacy***

4. The difference between me and the other players is justified and right
5. The difference between me and the other players makes sense

6. The difference between me and the other players is the way it should be

***Stability***

7. In the next round of the game, how likely are individual token differences between players to change?
8. In the next round of the game, I think the relationship between players will remain stable for the duration of the game
9. The current relationship between players will not change easily

***Competition***

10. I felt that I competed with the other players.
11. I felt that I competed with the other players.



## Appendix 1.2: Pre- and Post-test Questionnaire (Group Condition)

### *Demographic Items*

1. State your age

--

2. State your gender

Female	Male
--------	------

3. State your race

Black	Coloured	Indian	White	Other
-------	----------	--------	-------	-------

### *Exploratory Items*

Use the 7 point Likert scale below to indicate your opinion regarding each of the items listed below

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
strongly disagree	disagree	somewhat disagree	neither disagree nor agree	somewhat agree	agree	strongly agree

### ***Ingroup Identification***

1. I identify with other members of my group
2. I have a sense of belonging to my group
3. I feel strong ties with my group

### ***Legitimacy***

4. The difference between my group and the other group is justified and right
5. The difference between my group and the other group makes sense

6. The difference between my group and the other group is the way it should be

### *Stability*

7. In the next round of the game, how likely are group token differences between groups to change?
8. In the next round of the game, I think the relationship between groups will remain stable for the duration of the game
9. The current relationship between groups will not change easily

### *Competition*

10. I felt that my group competed with the other groups.
11. I felt that my group competed with the other groups.

## Appendix 2: Experiment Procedure and Script

### *Pre-experiment Procedure*

- 1) After all participants' fingerprints have been taken and they are seated in the lab: "Please can you switch off your cell phones". Then, read through the information sheet. Participants to sign consent form. Collect thereafter. Place documents on table. "We are conducting these experiments for multiple Masters research projects and for the School of Psychology. The way you answer the questions will affect the quality of the data. So, please can I ask that you concentrate while playing the game and answering the questions; also please do not talk or look around the room, this will affect the quality of the data and I will have to stop the experiment".

### *Experiment Procedure*

- 1) **Create Participant accounts** (register new usernames and passwords, type in access code to enter the game).
  - Please click on the icon on the top right hand side of your screen. You will see that you need to register a new username and password. Please do that now and ask for help if you get stuck.
  - Okay, now log in with your username and password and then type in the access code which is \_\_\_\_\_.
- 2) **Pregame questionnaire:**
  - Once logged in, players will be presented with a pregame questionnaire to ascertain participant demographics.
  - "Click on start to open the questionnaire, once you have filled it in and pressed 'submit', please close the browser and press 'completed' on the small screen."

### 3) **Group assignment:**

- Players will be presented with the preference task, if the game is a group condition.  
“You can now follow the screen prompts. You have to guess the number of dots onscreen and you will thereafter be assigned to groups, depending on your answer”
- If the game is an individual condition, there will be no group assignment and trial one will begin immediately.
- If a game in the 3 group condition is played, hand out a coloured sticker according to the group membership onscreen in order to know what incentives to give at the end of the game.

### 4) **Trial one (practice trial):**

- “I will now explain how the game works in these two practice rounds. In this game, you are meant to allocate tokens to other players. Each player is represented as a circle. The circle with the bold outline is ‘you’. Can you find yourself on the screen?  
(pause).
- “Next, let us look at the information on the screen. Note that the group or individual (depending on the game) token balances are indicated on the left of your screen”.
- “So in order to allocate a token: you have to click on a circle of your choice, then click on 'give token'. Notice the line appearing between the two players. This shows the intended token exchange. Now click on 'continue' to make the exchange. The game waits until all of you have allocated your token in order to move on to the next phase. Remember that if you change your mind about your allocation, you can take your token back and re-allocate it. To do this, click on 'take token back' then re-allocate the token. If you run out of tokens you must still press CONTINUE, you

won't run out here because you have 2 tokens and 2 rounds...Can you see that you have 2 tokens for 2 rounds? Okay, you can play now..."

- "Notice that after the round, you are presented with the 'Round moves' screen. This screen shows who gave who tokens. You should be able to see your allocation from the previous round and your new token balance on this screen. Once you have completed studying this diagram, click in continue on the top left icon on your screen".
- "Now, you can try this on your own again. After you allocate **your token please wait for my instructions.** (pause) Do not click, but notice how you did in that round. This screen tells you how you did in the round".
- Click on 'continue', notice you are asked to complete another questionnaire. Before we start the questionnaire remember that when you are finished close the browser and press 'completed'. Okay, press the start button and now you can answer the questionnaire.

##### 5) **Trial two**

- Now we are going to play another game that is the same as the practice game we played before. This trial will consist of 40 rounds. There will also be another questionnaire based on this game, please complete it.
- To begin this game, click on 'ok' on your screen".

##### *Post-experiment Procedure*

- "Now that everyone has completed the questionnaire, I have to tell you that you were not part of the group you thought you were. You were randomly assigned to a group".  
Say this only for the group condition

- “Now, I will come around to each of you and hand out your cash incentive. You will need to sign confirming receipt of your money. Please remain seated. While we are handing out the money, please let us know what you thought of the experiment, what it was about etc (prompt short focus group discussions about their motives and thoughts about the experiments). Thank you for your time!”

### *Experiment Procedure*

- 1). Stage game on the server: remember to attach the correct arena and no. of players (14 in 2 group).
- 2). Allow participants into the Lab, first scanning their fingerprints.
- 3). After each participant has had their fingerprint scanned, ask them to draw a number from the bag to be “randomly” seated.
- 4). Hand out and then collect informed consent sheets
- 5). Begin the game (if it is the 3 group condition, make sure each participant has a sticker with the colour of their group).
- 6). Thank the participants and explain the procedure for handing out incentives. Turn on the recorder.

Incentives:

- 3 group condition- **winning group gets R30 each, second group gets R20 and losing group gets R10**

For ties: If 2 groups ties first R25 each and losing group R10 each

If 2 groups tie second R15 each with winning group R30 each

If all 3 groups ties, R20 each.

- All other games- individuals get the amount of money as represented by their token count on their screen

7). Make sure participants sign the receipt of incentives form when you hand out incentives.

Ask focus group questions while handing out the incentives.

*Examples of Focus Group Questions*

1). What did you think of the experiment?

2). What did you think it was about?

3). How did you choose how to allocate tokens? Why?

4). Did anything happen during the game that caught your attention? How did you respond?

## Appendix 3: Informed Consent Form

### *Information Sheet*

Dear Participant,

This is a research project on intergroup behaviour.

**Brief outline of the study:** This research study aims to explore behaviour in a social setting. The study is electronically based game, played by up to 18 players, by giving and receiving of tokens.

**What you will be required to do:** The study will take place in the Psych Lab. You will be required to play a game and answer a questionnaire. This will take about 20-30 minutes of your time.

**Voluntary participation:** Your participation is voluntary and you are not being forced to take part in this study. The choice of whether or not to participate is yours alone and there will be no consequences if you choose to not take part. You may withdraw from the research at any time by telling me that you do not want to continue. There will be no penalties for doing so.

**Anonymity:** Although we will ask you to register as a research participant, your responses will not be linked with your name or any other information by which you can be identified. In other words, you will remain entirely anonymous and your participation will remain confidential. There are no limits to confidentiality.



**Research incentive:** You will be given an amount of money after you complete the study that depends on the number of tokens you get in the virtual experiment. Each token in the game is worth R1 in reality. There will be **an average incentive of R20** per player but please note that **you may finish the experiment with less than this amount** or more or perhaps with no money at all. It all depends on what happens in the game. If you end up with get one token you will receive R1; if you end up with 20 tokens you will get R20.

I understand/do not understand that I may leave the study with little or no cash incentive.

Furthermore, you will be placed in a group at the start of the game. Some groups will start with more tokens than other groups. Based on the group you are placed in you may start with more than 20 tokens or less than 20 tokens. This will influence your tokens at the end of the game and thus your incentive money. Whether your group has more or less tokens at the beginning of the study is not personal and should not be taken as such.

I understand/do not understand that I may be placed in a group with fewer tokens in the beginning of the game and that this could reduce my final possible cash incentive.

**If you participate in this experiment you are accepting that you agree with these conditions.**

**If you do not agree with these conditions then please do not participate in the experiment.**

**Who to contact if you have been harmed or have any concerns:** Although this research involves very little risk, if you have any questions or complaints about aspects of the research or feel that you have been harmed in any way by participating in this study, please contact:

- Project Leaders: School of Applied Human Sciences, University of KwaZulu-Natal:  
Professor Kevin Durrheim ([Durrheim@ukzn.ac.za](mailto:Durrheim@ukzn.ac.za)) and Dr. Mike Quayle  
([QuayleM@ukzn.ac.za](mailto:QuayleM@ukzn.ac.za))
- Human Social Science Research Ethics Committee:  
Ms. Phume Ximba ([ximbap@ukzn.ac.za](mailto:ximbap@ukzn.ac.za)/ 031 260 3587)

### *Consent Form*

I hereby agree to participate in research on social interaction. I am aware of what is required of me, and I understand that:

- I am participating freely and without coercion.
- This is a research project whose purpose is not necessarily to benefit me personally.
- I will remain anonymous and my participation in the study will remain confidential.
- I have a right to withdraw from the study at any time, without penalty.
- I agree to the results of my participation being used for research and teaching purposes and for presentation in reports and at conferences. My name will not appear in any of these documents.
- I agree/disagree to the discussion at the end of the game being recorded for research purposes.

Signature of participant: \_\_\_\_\_ Date: \_\_\_\_\_