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Exploring the differences in social interaction with the opposite sex amongst individuals from co-education and single-sex schools: a quantitative study on female university students using questionnaires.

DECLARATION

I, Ashleigh James, hereby declare that that the Research Report submitted for the Bachelor of Arts Honours in Psychology Degree to The Independent Institute of Education is my own work and has not previously been submitted to another University or Higher Education Institution for degree purposes.

Signature:

Date: 24/10/2020

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ABSTRACT

The South African schooling system is comprised of single-sex and co-education schools. Individuals who attend single-sex schools may experience difficulties in social interaction with individuals from the opposite sex when entering a tertiary environment, however the impact of this is still poorly understood (Wong, Shi & Chen, 2018). The present study therefore aimed to determine whether there was a relationship between the type of schooling that a female individual receives and their ability to interact with individuals of the opposite sex in a tertiary environment. Thirty female participants were recruited using non-random, convenience sampling and snowball sampling. The study was designed as a quantitative study. Data for this survey was collected through the use of closed-ended, online based questionnaires using SurveyMonkey (SurveyMonkey, 2020) so that participants' self-reported information could be measured while safeguarding their anonymity. The data was analysed using cross-sectional and deductive analysis. Single-sex schooling was shown to have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level, therefore highlighting the potential negative psychological and social implications of single-sex schooling. These include experiencing increased anxiety levels, isolating themselves and reduced interaction with members of the opposite sex.

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1. INTRODUCTION

1.1. Contextualisation

The South African schooling system is comprised of a private and a government sector. These sectors consist of single-sex and co-education schools. In South Africa, many parents send their children to single-sex schools. This is particularly evident in the private education sector where there are a large number of single-sex schools (ISASA, 2020). As a result, individuals who attend single-sex schools may experience difficulties in social interaction with individuals from the opposite sex when entering a tertiary environment. The impact of single-sex schooling on the social interaction of females with individuals of the opposite sex is still poorly understood (Wong et al., 2018).

1.2. Rationale

1.2.1. Personal Rationale

On a personal level, the researcher experienced both a co-education schooling system and a single-sex schooling system. This in turn led the researcher to identify differences in the way individuals behaved towards members of the opposite sex. This led to an interest in identifying why individuals engage in certain different behaviours and resulted in the researcher wondering whether there is a relationship between the school an individual attends and their ability to interact with members of the opposite sex or if this observation was just by chance.

1.2.2. Academic Rationale

If there is a relationship between single-sex schooling and difficulty in social interaction with members of the opposite sex amongst female individuals in a tertiary education environment, this would highlight the potential negative psychological and social implications of single-sex schooling. These potential negative psychological and social implications may include female individuals experiencing increased levels of anxiety when interacting with members of the opposite sex and thus may result in them isolating themselves and not wanting to interact with members of the opposite sex. It may also lead to them experiencing difficulties when having to work with members of the opposite sex at a university level in terms of group assignments, as well as have implications in future situations such as experiencing difficulty when communicating with members of the opposite

sex in a corporate environment (Thompson, Van Zalk, Marshall, Sargeant & Stubbs, 2019). In some cases, it may also influence parents' decision regarding school placement. In terms of relevance, it may influence the development of policies about schooling systems and therefore lead to the department of education establishing schooling systems that encourage and influence healthy behaviours and provide adequate interactions with members of the opposite sex. Therefore, research on this topic is important because with the large number of single-sex schools in South Africa, it is imperative to know if there are future implications at the behavioural and communication levels towards members of the opposite sex.

1.3. Problem Statement

Owing to the fact that there are a large number of single-sex schools in the South African private education sector (ISASA, 2020), it can be assumed that many parents would send their children to these schools. Consequently, females who received single-sex schooling may experience difficulties when engaging socially with individuals of the opposite sex when entering a tertiary education environment. Currently, there is little evidence based on local research to support this statement. The problem is that the school an individual attends could have a negative impact on their ability to socialise with the opposite sex at a tertiary level of education which may have further repercussions on friendships, romantic relationships and professional relationships. It is currently not known whether the school a female individual attends (single-sex or co-education) will have an impact on their ability to interact with the opposite sex.

1.4. Purpose Statement

The purpose of this research is to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment.

1.5. Research Question

Does the school that a female individual attends, in terms of single-sex or co-education, affect their ability to interact socially with the opposite sex?

1.6. Hypotheses

1.6.1. Null Hypothesis (H₀):

Single-sex schooling does not have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level.

1.6.2. Alternative Hypothesis (H₁):

Single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level.

2. LITERATURE REVIEW

2.1. Theoretical foundation and how it links to the research problem

2.1.1. Theory 1: Lev Vygotsky's Social Constructivist Theory

Psychological theories were utilised in order to aid in the understanding of the data gathered during the research process. The theory most relevant to this topic is Lev Vygotsky's Social Constructivist Theory (Amineh & Asl, 2015). There are a few key concepts to this theory. The first one being that thoughts develop and adapt from society which then influences the individual (Amineh & Asl, 2015). The second key concept is that of cognitive development which is a consequence of certain extrinsic factors such as social interaction (instead of individual formation or construction), historical factors and cultural or contextual factors (Amineh & Asl, 2015). Psychological tools, particularly that of language, allows individuals to learn certain appropriate behaviour (Amineh & Asl, 2015). Lastly, cognitive growth and improvement occurs first on a social level and then it occurs within the individual. In other words, in order to make sense of or understand other individuals as well as construct knowledge on those required social levels, individuals need to relate themselves to the particular circumstance. The origin of an individual's knowledge for these circumstances arises from the interactions they experience with other people and their surroundings before their knowledge is internalised (Amineh & Asl, 2015).

Lev Vygotsky's Social Constructivist Theory is relevant to this research because it allows one to predict the behaviour and mannerisms an individual learns and acquires based on their environment and the people they interact with. This theory contributes to the understanding of the chosen research problem because it highlights the fact that individuals

learn certain behaviours based on interaction with others. This emphasises the notion that if an individual attends a single-sex school, they are less likely to interact with members of the opposite sex and therefore, do not learn certain social cues, or how to behave or interact with members of the opposite sex when they enter a tertiary environment.

2.1.2. Theory 2: The Realistic Conflict Theory

The second theory is The Realistic Conflict Theory (RCT) which was developed by Muzafer Sherif (Schofield, 2009). This theory is a social psychological model of conflict between groups (intergroup conflict). The RCT describes how hostility between groups evolves as a consequence of conflicting goals and competition over certain resources that are limited, as well as the reason why there is prejudice and discrimination towards individuals belonging to the outgroup (Schofield, 2009). Researchers realised that there was a problem with past perceptions and understanding of intergroup behaviour, as past social exchange theorists disregarded the significance of interchanges between groups. The RCT, however, does take the sources of conflict between groups into account such as incompatible goals (Schofield, 2009). The Robber's Cave experiment was conducted by Muzafer Sherif and Carolyn Wood Sherif over a three-week period in order to give a demonstration of the RCT (Schofield, 2009). There were three (3) stages of the experiment: the ingroup formation, the friction phase and the integration stage. The first stage (ingroup formation) consisted of splitting participants who had not previously met into two equal size groups based on similarities, the second stage (ingroup formation) consisted of competition between the two groups for prizes that were given to the winning group which then caused a negative attitude and behaviour towards the members in the outgroup. The third stage (integration stage) consisted of reduced tension between the two groups due to having to complete tasks that required teamwork between the groups, in other words, the tasks require cooperation between the groups (intergroup cooperation) (Schofield, 2009). This experiment allowed the researchers to make several important conclusions such as: certain aggressive behaviours occur between groups when they are competing for certain resources that only one of the two groups can obtain, and that contact between, as well as goals that promote cooperative interaction between the two groups, leads to reduced negative attitudes and increased positive intergroup relations (Schofield, 2009).

Therefore, although this theory is traditionally used when discussing racial prejudice and racial tensions amongst minority and majority groups, it is relevant to this study because it can be used to describe how individuals who have had single-sex schooling with limited

interaction with individuals of the opposite sex may experience heightened levels of anxiety, and perceive social interactions with members of the opposite sex to be threatening. The RCT asserts that if individuals are competing for the same resources, then friction is likely to occur between the two groups (Schofield, 2009). This theory asserts that when different groups work towards different goals, there will be conflict between them but if they believe that they are working towards the same goals and they are more similar than they are different, then this will reduce hostility. This is because if they see themselves as being a part of the same group as opposed to different groups, it will lead to less hostility. Therefore, female individuals who attended co-education schools might realise that they are more similar to individuals of the opposite sex in comparison to females who attended single-sex schools. This is due to the fact that females who attended single-sex schools see themselves as being very different to, and having different goals in comparison to individuals of the opposite sex and therefore, they see conflict existing between the two groups when they enter a tertiary education environment. Whereas if females attended a co-education school, they might see themselves as having the same goals, thoughts and feelings as members of the opposite sex and thus they identify a sense of commonality which reduces a sense of conflict between the groups.

2.2. Review of previous literature

2.2.1. Introduction

A review of previous literature is outlined below in order to critically analyse and review previous knowledge gained from studies conducted on similar topics. This is done in order to enhance this research and explain how it relates to previous research as well as indicate what areas are unknown. The five major themes are: the meaning of what single-sex schooling and co-education schooling are, why children attend these schools and why parents place their child in the chosen school, what social interaction is, what is meant by anxiety in the context of individuals who experienced single-sex schooling and the symptoms thereof, and lastly, why individuals who experienced single-sex schooling tend to have less friends of the opposite sex.

2.2.2. Theme 1: Single-sex and co-education schooling

According to Eliot (2013), single-sex schools or sex-segregated schools can be referred to as an educational system whereby males and females are taught separately. In other words, males and females are segregated and are taught in different institutions (Eliot, 2013). Co-

education on the other hand, can be defined by both sexes (male and female) being educated or taught together in the same institution (Lasser, 1987). Males and females are also able to interact with one another in a school setting (Lasser, 1987). These definitions are important to understand in this research because this research looked at the South African schooling system which tertiary educational female students attended. These schooling systems are comprised of a private and a government sector. These sectors each consist of single-sex and co-education schools. In South Africa, many parents send their children to single-sex schools. This is particularly evident in the private education sector where there are a large number of single-sex schools (ISASA, 2020). The following theme will address the reasons why individuals attend their respective school.

2.2.3. Theme 2: Reasons for attending single-sex or co-education schooling

One may be curious as to why a parent would send their child to their respective school. According to studies involving unique data set surveys, census and administrative data, Burgess, Greaves, Vignoles and Wilson (2015) highlight that there are many factors which contribute to the decision a parent makes about sending their child to their respective school. Some of those factors include: the location of the school relative to where the parent works or where they live, the school's socio-economic composition and the school quality and academic performance. Most parents base their decision on their child's school on academic performance of the school (Burgess et al., 2015). Most individuals believe that segregating males and females by enrolling them in single-sex schools, leads to them performing better academically as they are taught separately due to having developmental differences in neurological and brain functioning (Eliot, 2013). However, Eliot (2013) makes it evident with studies conducted on the neural basis of learning, that this statement is false. In terms of academic skills such as calculation or reading for example, males and females do not master this differently. Although males and females have differences in their interests, their basic cognitive, self-regulatory and emotional abilities vary more within each gender than between each gender. Apart from the scientific misinterpretation, the logic of enrolling a child in a single-sex school based on physiological or anatomical traits contradicts the principles and purpose of education (Eliot, 2013). This may lead to negative future implications such as in the case of social interaction with members of the opposite sex outside of the secondary schooling environment.

2.2.4. Theme 3: Social interaction

Social interaction refers to the coordination of behaviour that occurs between two or more individuals within society (Misyak, Melkonyan, Zeitoun & Chater, 2014). Social interaction often requires individuals to coordinate their behaviour across a variety of situations. Social science studies suggest that this coordination of behaviour between two or more individuals is controlled or determined from patterns which include that of customs and norms (Misyak et al., 2014). These customs or norms then control the interpretation of facial expressions, gestures, language, social and organisational roles as well as shared moral beliefs (Misyak et al., 2014). In a study conducted by Vaughn and Witko (2013), parents believe that the school a child attends has a large impact on the ability of an individual to interact socially, and this socialisation improves the academic achievement of an individual. This study analysed the results of numerous eighth grade students with the use of descriptive statistics by looking at the mean, median and mode of student engagement and then drawing the conclusion stated above (Vaughn & Witko, 2013). The concern and reason for conducting this research is that the school an individual attends could have a negative impact on their ability to socialise with the opposite sex at a tertiary level of education, which may have further repercussions on friendships, romantic relationships and professional relationships (Thompson et al., 2019). It is currently not known whether the school a female individual attends (single-sex or co-education) will have an impact on their ability to interact with the opposite sex. This inability to socialise with members of the opposite sex can occur due to experiencing feelings of anxiety which will be explained in the following theme.

2.2.5. Theme 4: Anxiety and symptoms

Social interaction with members of the opposite sex may cause anxiety among individuals who experienced single-sex schooling (Wong et al., 2018). According to studies conducted, individuals differ from one another in the degree to which evaluations of other individuals affect them and their desire to make good and appropriate impressions on others (Leary, Jongman-Sereno & Diebels, 2015). There are few studies that evaluate whether attending a single-sex school does affect a female individual's ability to socially interact with members of the opposite sex in a tertiary education setting (Wong et al., 2018). According to regression analysis conducted, an association can be made between social anxiety and behavioural discomfort (Thompson et al., 2019). In other words, anxiety experienced when members of the opposite sex interact can be displayed in the form of behavioural symptoms. These behavioural symptoms of anxiety include fidgeting, sweating and trembling for

example, as well as an impairment of certain language abilities such as non-fluent language, increase in pace of language or inability to use language (Thompson et al., 2019).

2.2.6. Theme 5: Impacts of single-sex schooling on friendships

As mentioned above by Eliot (2013) and Lasser (1987), the main difference between single-sex schools and co-education schools is the absence or presence of other-gendered peers. It is important to address certain questions such as: whether attending a single-sex school impacts gender salience or if it leads to individuals experiencing anxiety when they interact with members of the opposite sex in a tertiary environment (Wong et al., 2018). If this is the case, this will lead to individuals having fewer relationships (friendships, romantic or professional relationships) with members of the opposite sex which may later pose as a problem due to the fact that mixed-gender encounters are in fact inevitable. It is also important in development to form healthy mixed-gender relationships (Wong et al., 2018). Existing studies mainly focus on achievement-related outcomes for single-sex and co-education schooling as well as other aspects of how they differ, such as the norms, the type of gender(s) that attend the school as well as the schooling procedural differences (Wong et al., 2018). However, there is little focus on the consequences of attending a single-sex school as opposed to a co-education school. Currently, there is little evidence based on local research to support the statement that females who attend single-sex schools may experience difficulties in social interaction with individuals of the opposite sex when entering a tertiary environment. Similar topics have been studied by other researchers such as Wong et al. (2018). However, according to Wong et al. (2018) there is little evidence found to support this due to the limited number of studies that have been conducted on this topic. The few studies that have been conducted were also not conducted locally (in South Africa), which highlights the lack of South African literature on this topic and therefore, a rationale behind why this study was conducted. The above-mentioned study by Wong et al. (2018) was conducted in Hong Kong and looked at both genders whereas this research only focuses on females. Wong et al. (2018) proposes a counterargument which suggests that there may be other factors, aside from the type of schooling that an individual receives, that influence their ability to socialise with individuals of the opposite sex. It has also been suggested that females are naturally more anxious than their male counterparts, making it an important factor to take into consideration (Maeng & Milad, 2015).

2.2.7. Conclusion

By looking at the themes in the review of previous literature such as single-sex and co-education schooling, reasons for attending single-sex or co-education schooling, social interaction, anxiety and symptoms and impacts of single-sex schooling on friendships, it is therefore plausible to assume that there may be implications when sending a child to a single-sex school and these may negatively affect many aspects of their life later on. Therefore, further research on this topic in a South African context would be beneficial.

2.3. Conceptualisation

2.3.1. Single-sex schooling

Single-sex schooling can be referred to as a school system where males and females are segregated and are taught in different institutions (Eliot, 2013). It was operationalised by requesting the participant to state the type of schooling (single-sex or co-education) that they were exposed to, in the questionnaire.

2.3.2. Co-education schooling

Co-education schooling refers to an educational institution where both males and females are present and are educated together (Lasser, 1987). Just as the key concept or term of single-sex schooling, co-education schooling was operationalised by requesting the participant to state the type of schooling (single-sex or co-education) that they were exposed to in the questionnaire.

2.3.3. Anxiety

Anxiety refers to the feeling of nervousness, unease or worry that an individual may experience due to an event that has occurred, may occur or is currently occurring (Leary et al., 2015). In the context of this research, anxiety refers to the feeling of nervousness, unease or worry that an individual may experience when socialising with members of the opposite sex. This was operationalised by the use of rating scales in the questionnaire, where participants chose a value from 1 (being a low level of anxiety) to 5 (being a high level of anxiety) for certain questions regarding the level of anxiety they experience when interacting with members of the opposite sex. The researcher then analysed the data by using descriptive and inferential statistics.

2.3.4. Social interaction

Social interaction refers to a complex combination or coordinating of behaviours and mannerisms towards other individuals (Misyak et al., 2014). In the context of this research, social interaction refers to the way a female individual behaves in the presence of an individual of the opposite sex as well as how frequently the interaction occurs. Social interaction was operationalised by asking closed ended questions in the questionnaire, where participants have to rate their answers on a scale. For example, the questions included: how often do you interact with members of the opposite sex, participants then had to rate on a scale between 0 (not often) to 5 (very often). The researcher then analysed the data by using descriptive and inferential statistics.

2.3.5. Tertiary Education

Tertiary education can also be referred to as post-secondary education and may be defined as the education one receives after the completion of secondary education. Tertiary education is obtained from attending universities at a higher or intermediate level or from non-university institutions such as colleges or trade schools where one can obtain a certified vocational degree (Bania & Kvernmo, 2016). In the context of this research, tertiary education refers to the education and degree one achieves from attending a university. The participant must be a female in her first year of university. This was operationalised by requiring the participant to tick whether she is currently in her first year of receiving a tertiary education from a credible tertiary institution (university).

2.3.6. Relationships

Relationships refer to the connection between two or more individuals (Umberson & Montez, 2010). It is the overall or complete level of involvement between individuals. Relationships have a significant impact on the health and well-being of individuals through behavioural psychosocial and psychological pathways (Umberson & Montez, 2010). There are many different types of relationships such as friendships, romantic relationships and business relationships (Umberson & Montez, 2010). In the context of this research, relationships refer to the connection between members of the opposite sex (males and females) in terms of romantic relationships and platonic relationships or friendships between individuals who are in their first year of tertiary education. This was operationalised by requiring the participants to answer closed-ended questions in a questionnaire. For example, the questions included: how many friends do you have who are of the opposite sex? (participants then have to rate

on a scale whether they fall within the range of: 0 friends of the opposite sex, 1-5 friends of the opposite sex, 6-10 friends of the opposite sex, 11-15 friends of the opposite sex or more than 15 friends of the opposite sex). The researcher then analysed the data by using descriptive and inferential statistics.

2.3.7. Variables

The research question is: does the school that a female individual attends, in terms of single-sex or co-education, affect their ability to interact socially with individuals of the opposite sex? In the research being conducted, variables were utilised due to the fact that the research is quantitative. A variable is a phenomenon or characteristic that may differ within or across situations, environments or organisms (Christensen, Johnson & Turner, 2015). The first type of variable is an independent variable, this variable is responsible for causing a change in another variable and can be manipulated, it is also known before the experiment commences (Christensen et al., 2015). In the case of this particular research, the independent variable is the school that a female individual attends in terms of single-sex or coeducation. This was operationalised by requiring an individual to select the type of schooling they experienced, in the questionnaire. The second variable is the dependent variable which can be described as a variable that occurs as a result of the independent variable, it is the variable that the researcher aims to measure and is not known before the experiment occurs (Christensen et al., 2015). In the case of this research, the dependent variable is the ability of a female to interact with members of the opposite sex. This was operationalised by asking closed ended questions in the questionnaire, such as: what level of anxiety do you experience when socially interacting with a member of the opposite sex, and then ask the individual to rate their level of anxiety on a rating scale. The next variable is a categorical variable which is a variable that differs by kind or type (Christensen et al., 2015). In the case of this research the categorical variable is that of sex due to the fact that its levels represent types, the particular gender being studied will be that of females. The last variable is an extraneous variable, which can be defined as a variable or external factor that may compete or challenge the independent variable when it comes to explaining the outcome (Christensen et al., 2015). In this research, the extraneous variable could be if the individual who attended a single-sex school has a male sibling and therefore, interacted with members of the opposite sex outside the school environment, which would then affect their ability to socialise with members of the opposite sex. This variable was operationalised by requiring an individual to state whether they have a sibling, close friend, or other family

member (of a similar age) of the opposite sex in the questionnaire and if so, how strong is their relationship, in order to account for this as an outlier.

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Outline of worldview/paradigm/tradition

In research, a paradigm (theoretical framework) refers to a group of beliefs about how the world works, what knowledge is comprised of and what shapes it, and how research should be carried out (Maree, 2020). In this research, the paradigm utilised was that of positivism due to the fact that the knowledge produced was objective and factual. Positivism aids in the understanding of why the particular research is done (Maree, 2020). In terms of a positivist perspective, the ontological position is that the view of reality is the same for everyone and that there is a single objective reality to every research occurrence despite what the researcher believes, so if a researcher works something out or comes to a conclusion about a particular question that is true for the sample recruited, then it will be true for everyone in the target population (Maree, 2020).

For the purpose of this research a positivist ontological perspective was utilised in order to make a generalisation about the results obtained, so if the research does come to the conclusion that single-sex schooling has a negative impact on a female's ability to socialise with males at a tertiary education level, then the researcher can generalise the results to the population and state that all females who attended a single-sex school will experience this. In terms of an epistemological position from a positivist perspective, epistemology has to do with knowledge and what one considers to be knowledge and evidence (Maree, 2020). Due to a positivist having a fixed view of reality, this guides their epistemological position (the understanding of knowledge is grounded by this view). The understanding of knowledge refers to one being able to reach objective truth. That knowledge can then be generalised in order to make it true for everyone (Maree, 2020). The knowledge that is gained and forms part of the evidence is viewed as objective, hard and real as well as measurable and quantifiable (Maree, 2020). For the purpose of this research, the positivist epistemological position was utilised due to the researcher wanting to gain knowledge on whether female individuals who attended a single-sex school (as opposed to those who attended a co-education school), did indeed find difficulty in interacting with members of the opposite sex in a tertiary environment. The aim was to generalise these results to the entire population.

Lastly, in terms of a methodological position, a positivist view was utilised in order to determine if the sample is representative of the target population, therefore, it refers to the procedure the researcher utilises in order to acquire knowledge (Maree, 2020). A quantitative methodology is generally associated with the positivist paradigm because it allows for data collection and analysis which is considered more objective and fact based than qualitative research (Maree, 2020). An online-based questionnaire with closed ended questions was utilised and analysed with descriptive and inferential statistics, which therefore, fits in with quantitative data collection and analysis. The researcher is going to have a percentage answer for whether attending a single-sex or co-education school impacts the ability of a female to interact with members of the opposite sex in a tertiary environment. Therefore, for the purpose of answering the question of whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment, the positivist perspective is the most suited paradigm or worldview to do so.

3.2. Research approach and design

3.2.1. Conceptual Approach/Research Methodology

The research methodology utilised was that of a quantitative approach. Quantitative research is utilised in order to quantify a particular research problem by generating data that can be converted into usable statistics so that attitudes, behaviours or opinions can be quantified and then results from a sample can be generalised to a larger population (Maree, 2020). The researcher used quantitative methods for this research due to the fact that they wanted to use descriptive and inferential statistics in order to assess the data collected so that they could identify whether there was a relationship between the school a female individual attends (single-sex or co-education) and their ability to interact with members of the opposite sex, and then generalise the results of the sample to the population. There are advantages with using quantitative research methods that made the researcher choose this type of research. These advantages include: more objective methods of testing in order to accept or reject the hypothesis, standardised, closed-ended questions in order to reduce bias as well as the use of statistics in order to assess the collected data, which led to a decrease in bias, and an increase in validity and reliability, as well as a larger sample size which made the results more reliable and valid in order to make generalisations about a larger population (Slife & Melling, 2012). However, some disadvantages of using quantitative

research methods is that having a larger sample size can lead to difficulties such as the data collection and analysis being more time consuming and expensive as well as it being difficult to quantify participant's feelings or experiences (Slife & Melling, 2012). In the case of this research, a nomothetic approach was taken which focuses on formulating general laws based on data collected (Maree, 2020). In this research, the researcher aimed to formulate a general law about the ability of female individuals to interact with members of the opposite sex based on the type of schooling (single-sex or co-education) they were exposed to.

3.2.2. *Research Design*

The research design is explained in order to accept or refute the null hypothesis and ultimately answer the main research question which the researcher aimed to solve. The researcher worked deductively in order to accomplish this. This is due to the fact that deductive research involves a logical process whereby the researcher is able to take the results and conclusions drawn from the sample and generalise it to the population, therefore, inferences about a phenomenon which occurs can be made from a general law (Maree, 2020).

For the purpose of this research, deductive methods were utilised as it was a preferred method for the positivist paradigm because the researcher aimed to generalise the results of whether single-sex schooling had a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level. The study was exploratory as the researcher aimed to investigate the problem mentioned above as there has been little research done on this in the past, especially in a South African context. Therefore, the researcher wanted to gain a better understanding of this topic. The researcher made use of a survey in the form of an online questionnaire using SurveyMonkey (SurveyMonkey, 2020) which consisted of closed-ended questions, this will be discussed in greater detail in section 3.5.

The research strategy used was that of an experimental design, specifically, a between-subject's design which consists of exploring a cause-and-effect relationship between the two variables (Gravetter & Forzano, 2016). In this research, the researcher explored the differences in social interaction with the opposite sex amongst female individuals from co-education and single-sex schools. The design of the research was cross-sectional which means that the study was carried out and the data collected from the various participants,

was over a single period (Christensen et al., 2015). In this research a cross-sectional study was utilised as 30 participants were assessed only once, on a single occasion.

3.3. Population

3.3.1. Unit of analysis

The unit of analysis for this research was that of individuals.

3.3.2. Target and accessible population

The target population can also be referred to as the theoretical population and can be defined as the entire population in which the researcher aims to explore or examine (Porter, 1999). In this research, the target population were all female individuals who were in their first year of tertiary education and had previously attended a school in which they either received single-sex schooling or co-education schooling. The accessible population is also known as the study population and is the population available for the researcher to explore and draw conclusions from (Porter, 1999). In this research, the accessible population were female first year university students who matriculated the previous year, that the researcher had contact details of, or had mutual acquaintances with.

3.3.3. Population parameters (characteristics)

In the case of this research, the population parameters, also known as the population characteristics (Lavrakas, 2008), were individuals of the female sex who were currently in their first year of tertiary education, and therefore would be between 18 and 20 years old because the participants had matriculated the previous year in South Africa. All participants had to be able to read and communicate in English.

3.4. Sampling

The sample refers to a group of individuals who are chosen from the accessible population and are representative of the target population in order to draw and generalise the conclusions or results obtained (Elfil & Negida, 2017). The sample consisted of thirty (30) female first year university students who had matriculated the previous year. Fifteen (15) who had received co-education schooling, and fifteen (15) who had received single-sex schooling were chosen using non-probability, convenience sampling. Non-probability sampling refers to a sampling method in which the sample population is chosen in a process that is non-systematic and thus does not ensure that there will be an equal and fair chance

for individuals from the target population to be selected as the sample (Elfil & Negida, 2017). Although typically probability sampling would be utilised for quantitative research, the reason why non-probability sampling was selected, was due to the fact that the researcher did not have a sampling frame, or a list, or access to all of the females in the target population.

Convenience sampling is one of the most widely utilised and applicable types of non-probability sampling (Elfil & Negida, 2017). Convenience sampling refers to samples that will be selected because they are more accessible to the researcher (Jager, Putnick & Bornstein, 2017). However, this method of sampling (non-probability, convenience sampling), is disadvantaged in the case of generalising results when compared to that of probability sampling (Jager et al., 2017). Despite this disadvantage, non-probability, convenience sampling was utilised in this research due to the fact that the sample participants who were selected, were readily available and easily recruitable for inclusion. It is also less expensive and time effective to utilise this form of sampling (Christensen et al., 2015). However, some problems arise when using this method, such as the sample size being small in comparison to the size of the population, therefore giving results that may not represent the total population and be inaccurate. Irrespective of this, for the purpose of this research on an Honours level, the sample size of 30 female first year university students (15 who previously attended a co-education school and 15 who previously attended a single-sex school) was a sufficiently large size for quantitative research. This is due to the fact that as mentioned earlier, quantitative research requires a larger sample of participants in comparison to that of qualitative research in order to be able to obtain statistical significance (Christensen et al., 2015). In addition, another type of non-probability sampling, snowball sampling, was utilised due to the fact that the researcher had to ask some participants to ask their acquaintances (who fit the population parameters) to take part in the research. This type of sampling was utilised because the required population was difficult to find (Maree & Pietersen, 2020).

3.5. Data collection

3.5.1. Data collection method

Due to this research using a positivist paradigm (because the knowledge produced was objective and factual), and due to the fact that positivism aided in the understanding of why the particular research was done (Maree, 2020), the research was quantitative. Data for this survey was collected through the use of online based questionnaires using SurveyMonkey

(SurveyMonkey, 2020) so that participants' opinions and self-reported information could be measured (Christensen et al., 2015). This was done to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education), and their ability to interact with individuals of the opposite sex in a tertiary education environment.

Two different links each consisting of the same questionnaire, one for individuals who attended single-sex schools and one for individuals who attended co-education schools, were sent to the participants via email along with the consent form. When this research was conducted, South Africa was undergoing a national lockdown due to the Covid-19 outbreak, making it difficult to collect data *in vivo* from students. Therefore, an online questionnaire was a more effective measure to safeguard the researcher and the participants. This also allowed the tests to be anonymous thereby excluding the limitation of response bias. Due to the questionnaire being online based, it was easier to distribute to participants and a larger sample size could be utilised (Christensen et al., 2015).

Questionnaires can provide information about a participant's subjective feelings and experiences when it comes to social interaction with members of the opposite sex (Christensen et al., 2015). Questionnaires are also useful for hypothesis testing research and therefore, were ideal for this research (Christensen et al., 2015). Lastly, due to the researcher making the questionnaire online based, it was less time consuming for the researcher to obtain the responses due to not having to disperse the questionnaires in person. However, there are some disadvantages with administering online questionnaires, such as reactive effects where the participant may provide responses that are seen as socially desirable rather than honest, and the response rate for the questionnaire may be low due to it being on an online platform, as some individuals may not have access to the internet (Christensen et al., 2015). Only closed-ended questions were utilised in order to provide the exact information needed for the quantitative research and thus, the question of "Does the school that a female individual attends, in terms of single-sex or co-education, affect their ability to interact socially with the opposite sex?" could be answered. Using closed-ended questions was an advantage because the participants only had to select an answer that was most relevant to their thoughts and experiences, thus, making it easier for them to answer the questionnaire and making it less time consuming and therefore, the researcher would be able to obtain the completed questionnaires from the participants in a shorter time frame (Christensen et al., 2015). However, a disadvantage with utilising closed-

ended questionnaires was that the participants were limited with the answers or responses they could give because if they wanted to give an answer that was not listed, or if they wanted to elaborate on an answer, they could not and thus they had to select the answer that was as close to their answer as possible (Christensen et al., 2015).

The specific format of the questionnaire was that of a Likert Scale which can be defined as a psychometric scale that will measure a participant's attitude, feelings or agreement about a particular statement (Cooper & Johnson, 2016). For this research, a five-point Likert Scale was utilised in order for participants to rate their attitude or feelings experienced when they are exposed to certain situations. The Likert Scale was utilised was due to its many advantages such as it being a universal method of collecting data and therefore, it is easy to understand, interpret, draw conclusions and results from the responses of participants when working with quantitative data (Cooper & Johnson, 2016). This therefore, allowed the researcher to be able to reject the Null Hypothesis (H_0) which states that "Single-sex schooling does not have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level" or accept the Alternative Hypothesis (H_1) which states that "Single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level". However, a disadvantage that will arise when working with a Likert Scale is that it does not allow participants to give additional comments or reasons as to why they would choose a particular point on the scale, and some participants may be inclined to choose an extreme point or the neutral point on the scale (Cooper & Johnson, 2016). The measuring instrument (five-point Likert Scale) that was utilised in this research was reliable due to the fact that the questions were closed-ended and the same questions as well as rating system were constant for every participant, therefore ensuring that the same items of measurement are measured for every participant. The data collection measure had construct validity because the questionnaire adhered to existing theories and knowledge available on social interaction (Pietersen & Maree, 2020^C).

The data-collection methods then needed to be applied and put into practice, which is explained in the application of data-collection methods. In this section, the exact methods of how the data was distributed and collected from the participants will be explored.

3.5.2. Data collection application

Initially the researcher contacted female individuals who were currently in their first year of tertiary education via the social media platform, WhatsApp. The researcher then sent an explanation of what the research was about and enquired whether they were interested in taking part. The researcher requested the email address of the individuals who were interested in taking part in the research, and as an attachment to that email, a letter of consent was provided in order to give a more in-depth explanation of what the research was about and what was required of them. If the individual did agree to take part after reading the consent form carefully, they were asked whether they attended a single-sex or co-education school. After obtaining this information, the researcher emailed the link of the applicable questionnaire based on their type of schooling. This link took the participant to the online platform SurveyMonkey which stored their responses for the researcher to analyse at a later stage. In both the consent form and the questionnaire, it was stated that answering the questionnaire was considered acknowledgment of informed consent. After completing this questionnaire, the researcher then asked if the participant knew of any female acquaintances who were also in their first year of tertiary education, who would be willing to also take part in the research. If the participant agreed to asking their female acquaintances to take part in the research, their cell phone number was given to the researcher (after consent was obtained to do so). The researcher introduced themselves to the participant over the social media platform, WhatsApp and gave them the same instructions. All participants who were contacted proceeded with completing the questionnaire.

3.6. Data analysis

3.6.1. Data analysis method

Data was analysed using both descriptive statistics which aims to summarise, describe or explain a set of data as well as inferential statistics which allows the researcher to make predictions from the data (Christensen et al., 2015). This was done for the purpose of determining whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment. The advantage with using descriptive statistics was that the data collected could be organised as well as summarised in a manner that was meaningful and thus, the understanding of the properties of the data collected from

female individuals who attended either a single-sex school or a co-education school were able to be enhanced (Pietersen & Maree, 2020^A). An important advantage of utilising descriptive statistics is that it allows objective assessment of the data collected and thus, bias is minimised (Pietersen & Maree, 2020^A). However, there are some disadvantages when using descriptive statistics. One disadvantage is that because the questions were closed ended and the participants had to choose the most applicable option, their responses were limited and thus, the statistics utilised in order to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment, were limited (Mishra et al., 2019). Descriptive statistics looks at individuals as a number instead of taking personal factors into account and thus, it can be dehumanising. The advantage of using inferential statistics is that the data collected and results concluded from the sample of 30 female first year students who attended a tertiary institution (15 female individuals who previously attended a single-sex school and 15 female individuals who previously attended a co-education school) (which was representative of the target population in the case of this research at an honours level), could be utilised in order to draw conclusions and generalise to the target population which was all female individuals who are currently in their first year of tertiary education and had previously attended a school in which they either received single-sex schooling or co-education schooling (Pietersen & Maree, 2020^B). The disadvantage of using inferential statistics that should be taken note of, is that although for the purposes of this study, the sample size was sufficient, in general it is not always completely possible to generalise results obtained from the sample to the target population (Bradley & Brand, 2016). According to Bradley and Brand (2016), usually a Type I error occurs where the null hypothesis is falsely rejected.

The researcher utilised SurveyMonkey (SurveyMonkey, 2020) which analysed the quantitative data acquired through the Statistical Package for the Social Sciences (SPSS) (Dembe, Partridge & Geist, 2011). This provided a numerical analysis as well as contrasted the relationships between the variables (Dembe et al., 2011). Bar graphs and pie charts were utilised in order to enhance understanding by allowing visual interpretation of the data (Christensen et al., 2015). The mean was utilised to identify the average of the population and therefore identify the average level of anxiety experienced by females when socialising with members of the opposite sex in a tertiary environment (Christensen et al., 2015). Thus, answering the question of “Does the school that a female individual attends, in terms of single-sex or co-education, affect their ability to interact socially with the opposite sex?”

However, it is important to note that a disadvantage arose in the case where there were some extreme values that could be viewed as outliers (Mishra et al., 2019). The mode was utilised to identify the response and its corresponding numerical value or percentage value that occurred the most frequently (Christensen et al., 2015). This was useful in order to identify whether the majority of female individuals from each category (either single-sex schools or co-education schools) had answers that were in line with the alternative hypothesis (H_1) which is that single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level. This research questionnaire was in the format of a Likert Scale, which can be defined as a psychometric scale that will measure a participant's attitude, feelings or agreement about a particular statement (Cooper & Johnson, 2016). For the purpose of this research, a five-point Likert Scale was utilised in order for participants to rate their attitude or feelings experienced when they are exposed to certain situations. As mentioned earlier, there are many advantages when using a Likert Scale such as it being a universal method of collecting data and therefore, it is easy to understand, interpret, draw conclusions and results from the responses of participants when working with quantitative data (Cooper & Johnson, 2016). However, a disadvantage that arises is that it does not allow participants to give additional comments or reasons as to why they would choose a particular point on the scale and some participants may be inclined to choose an extreme point or the neutral point on the scale (Cooper & Johnson, 2016). The Likert Scale was important when analysing the data because certain numerical values were given to certain responses and thus the researcher was able to use those values and identify which range they fall in and therefore, was able to determine if the Alternative Hypothesis (H_1) which stated that "Single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level" should be accepted, or if the Null Hypothesis (H_0) which stated that "Single-sex schooling does not have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level" should be rejected.

3.6.2. Data analysis application

Firstly, question one which asked what type of school the individual attended was utilised in order to categorise the female individuals in accordance with the type of schooling they experienced (co-education or a single-sex). This was done in order to look for trends in answers based on the type of schooling each participant experienced in order to determine

whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment. The second question asked whether the female individual had a sibling or siblings of the opposite sex. This was done in order to account for the confounding, extraneous variable which could affect the answers throughout the questionnaire, especially in the case of female individuals who attended a single-sex school, because having a sibling of the opposite sex would allow the female to have continuous interactions with a male and thus not affect their ability to interact with other males. Therefore, questions 1 and 2 were used for admin purposes but were vital in analysing the results obtained from questions three (3) to ten (10).

Due to the format of the questionnaire being that of a Likert Scale, certain values were allocated to each response in a question. This was the case for questions 3 to 10.

The data was analysed by looking at the mean Likert Scale value for each question in order to identify the average answer for each category so that a comparison could be made between the values obtained from female individuals who went to a single-sex school and female individuals who went to a co-education school.

Overall, the Likert Scale value that was found in the range of 8 to 23 was indicative of an individual not experiencing difficulty when interacting with members of the opposite sex in a tertiary education environment. The value of 24 was indicative of being neutral. The value that was found in the range of 25-40 was indicative of an individual experiencing difficulty when interacting with members of the opposite sex in a tertiary education environment. Thus, the mean Likert Scale overall value for female individuals who experienced single-sex schooling could be compared with the mean Likert Scale overall value for female individuals who experienced co-education schooling.

The mode percentage for each question 4 was obtained in order to identify what the most common answer was and thus indicated whether every participant had the same view on the matter.

Lastly, bar graphs (in the case of figure 1, 3-9) and pie charts (in the case of figures 2 and 10) were utilised in order to visually represent the data and allow for a clear visual difference between the two categories (female individuals who attended a single-sex school and female individuals who attended a co-education school) to be provided.

4. VALIDITY AND RELIABILITY OF FINDINGS

Reliability refers to the extent to which the research will be repeatable and the results will be consistent, in other words, it will determine if the research is credible (Jacques & Maree, 2020). Validity refers to the extent to which the research will actually measure what it intends to (Jacques & Maree, 2020). In order to ensure reliability and consistency, the researcher used standardised closed-ended questions so that all participants were measured on the same basis and that there was no opportunity for personal interpretation. This facilitated the measurement of the same construct and therefore maintained consistency throughout (Jacques & Maree, 2020). Another way which ensured reliability of the data collected, was through the use of the same descriptive and inferential statistics during data analysis. This allowed for consistency in the manner in which the data was analysed and reported (Jacques & Maree, 2020). Test-retest reliability was ensured by requesting a few participants to re-answer the questionnaire and ensure that the results remained similar to their initial questionnaire (Jacques & Maree, 2020).

The researcher ensured internal validity by taking note of any individuals who had attended single-sex schools and had siblings of the opposite sex. This was done to account for any confounding variables that may have affected the results (Jacques & Maree, 2020). The researcher also enhanced face validity and content validity of the research by ensuring that peer examination as well as supervisor examination of the measurement instrument, data and results occurred (Jacques & Maree, 2020). Descriptive and inferential statistics were used in order to ensure that the research measured what it intended to (Jacques & Maree, 2020). In order to avoid response bias, the researcher used two questions in the questionnaire that were assessing the same information but each question presented the query in a different way. This was important in assuring content validity.

5. FINDINGS AND INTERPRETATION OF FINDINGS

5.1. Introduction

The results summarised in this section indicate that single-sex schooling does have an impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level. This section will include a description of the anxiety experienced due to interaction, the perception of single-sex schooling, and the effects of schooling type on socialisation and communication. Where appropriate, existing research is presented to further the interpretation of the results.

5.2. Presentation and interpretation of findings

For figures 1, 3, 4-8; the Likert score of 3 is representative of a neutral response.

5.2.1. *Anxiety due to interaction*

Figure 1 indicates how much anxiety participants experience when interacting with members of the opposite sex (1= no anxiety; 5= high anxiety).

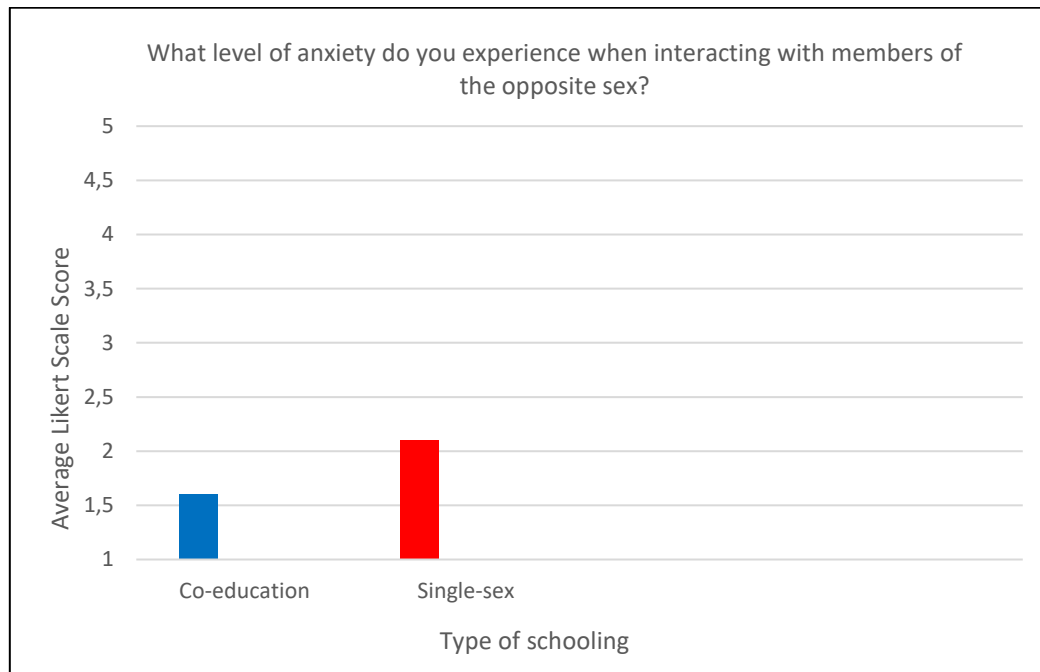


Figure 1: Analysis of the level of anxiety experienced when interacting with members of the opposite sex

The mean score for co-education participants was 1.6, whilst the mean score for single-sex participants was 2.1. All scores fell in the range of 1-2.9, indicating relatively little anxiety when interacting with the opposite sex.

It is evident, however, that the value for single-sex schools is higher than that of co-education schools, indicating that on average, individuals who attended a single-sex school did experience higher anxiety when compared to those who received co-education schooling. This finding is supported by Wong et al. (2018) who stated that social interaction with members of the opposite sex may cause anxiety among individuals who experienced single-sex schooling.

5.2.2. Perception of single-sex schooling

Figure 2 indicates whether participants believe that attending a single-sex school is advantageous when interacting with the opposite sex.

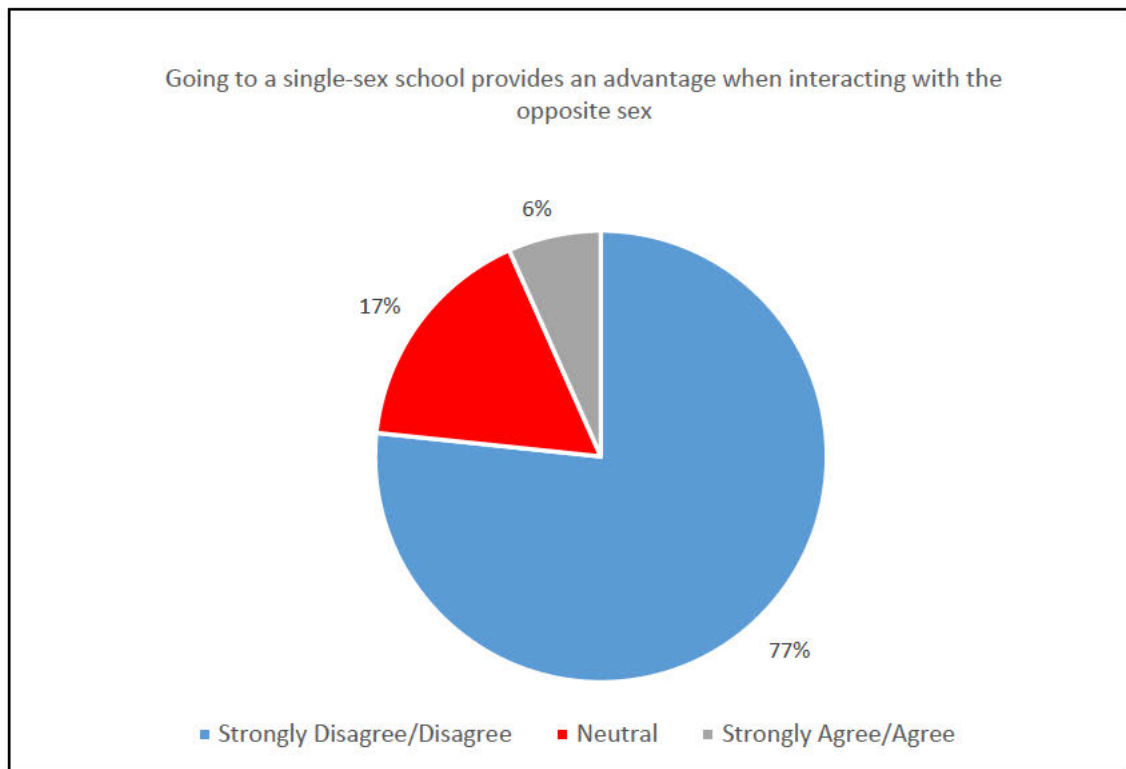


Figure 2: Analysis of the perception of single-sex schooling

The most common (modal) answer was that individuals from both categories disagreed or strongly disagreed with the statement presented above. Seventy seven percent (23) of all participants (30), disagreed or strongly disagreed with the question presented above. Whilst only 6% (2) of all participants, agreed or strongly agreed and 17% (5) of all participants (30), were neutral. This means that regardless of the type of schooling experienced, most participants believed that single-sex schooling was disadvantageous from a socialisation perspective. This is congruent with research by Vaughn and Witko (2013) who found that the school a child attends has a large impact on the ability of an individual to interact socially.

5.2.3. Frequency of interaction

Figure 3 indicates how often participants interact with members of the opposite sex (1= very often; 5= never).

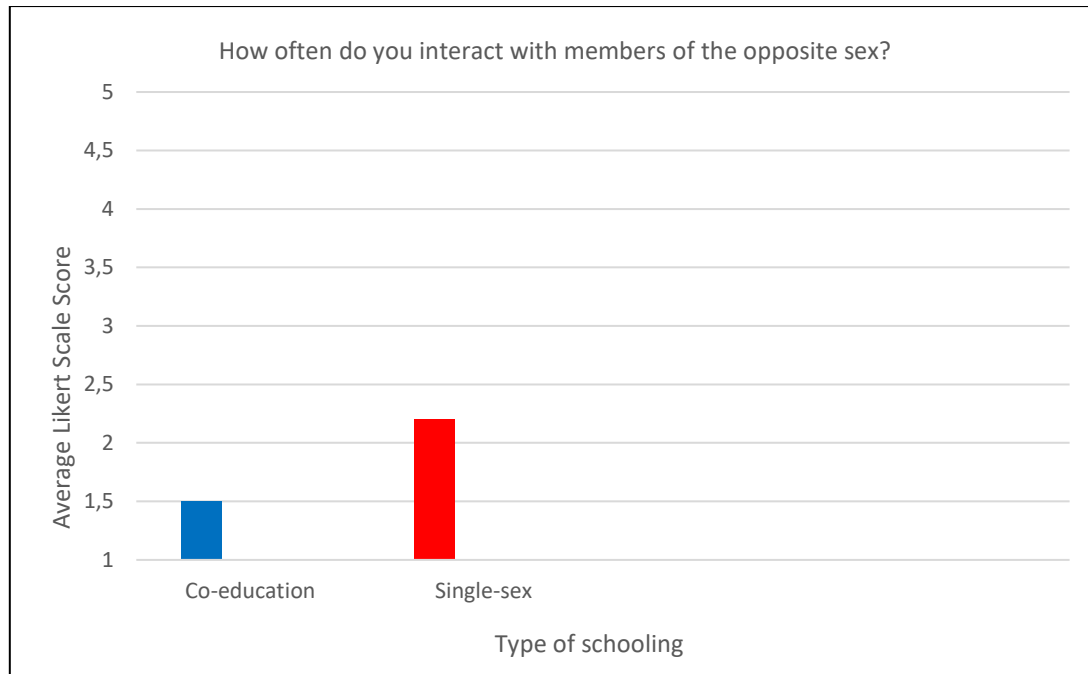


Figure 3: Analysis of how often interaction with members of the opposite sex occurs

The average Likert scale score for co-education participants was 1.5 out of 5, and 2.2 out of 5 for single-sex participants. These scores fell in the range of 1-2.9 which indicated that the participants interacted often with members of the opposite sex. These results indicate that, on average, single-sex school individuals interact less often with the opposite sex than co-education individuals.

5.2.4. Enjoyment of communication

Figure 4 indicates whether participants enjoy communicating with members of the opposite sex (1= really enjoy; 5= not at all).

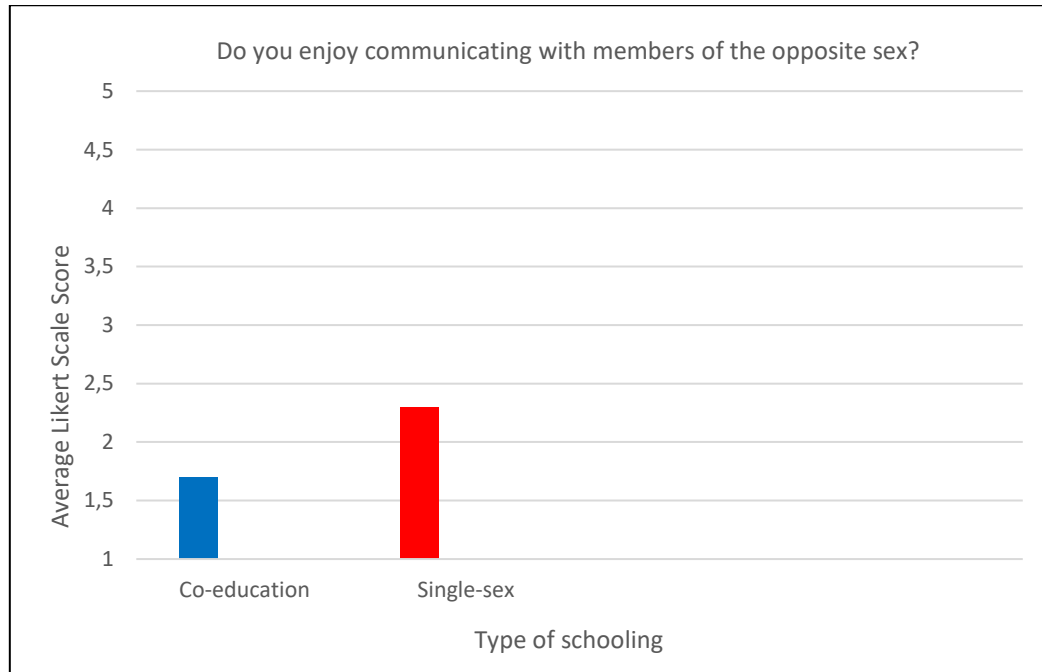


Figure 4: Analysis of enjoyment when communicating with members of the opposite sex

The average Likert scale score for co-education participants was 1.7 out of 5, and 2.3 out of 5 for single-sex participants. These scores fell in the range of 1-2.9 which indicated that the participants enjoyed interacting with members of the opposite sex. These results indicate that, on average, single-sex school individuals enjoy communicating with members of the opposite sex less than co-education individuals.

5.2.5. Enjoyment of interaction

Figure 5 indicates whether participants enjoy interacting with members of the opposite sex (1= really enjoy it; 5= not at all).

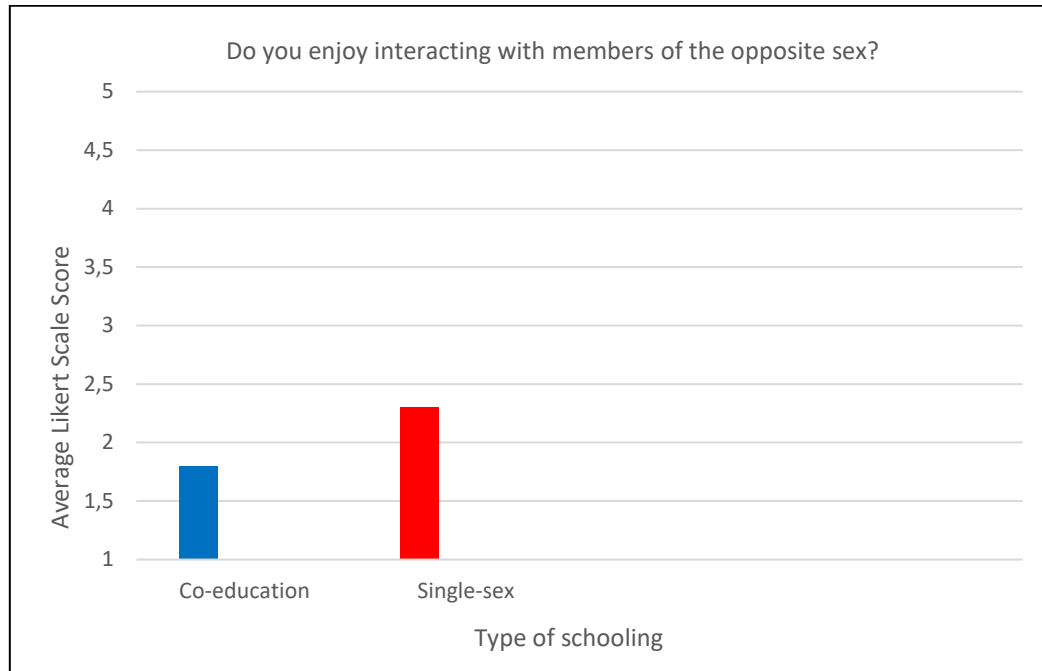


Figure 5: Analysis of enjoyment when interacting with members of the opposite sex

The average Likert scale score for co-education participants was 1.8 out of 5, and 2.3 out of 5 for single-sex school participants. These scores fell in the range of 1-2.9 which indicated that the participants enjoyed interacting with members of the opposite sex. These results indicate that, on average, single-sex school individuals enjoy interacting with members of the opposite sex less than co-education individuals.

5.2.6. Difficulty of socialising

Figure 6 indicates how much difficulty participants experience when socialising with members of the opposite sex (1= no difficulty; 5= high difficulty).

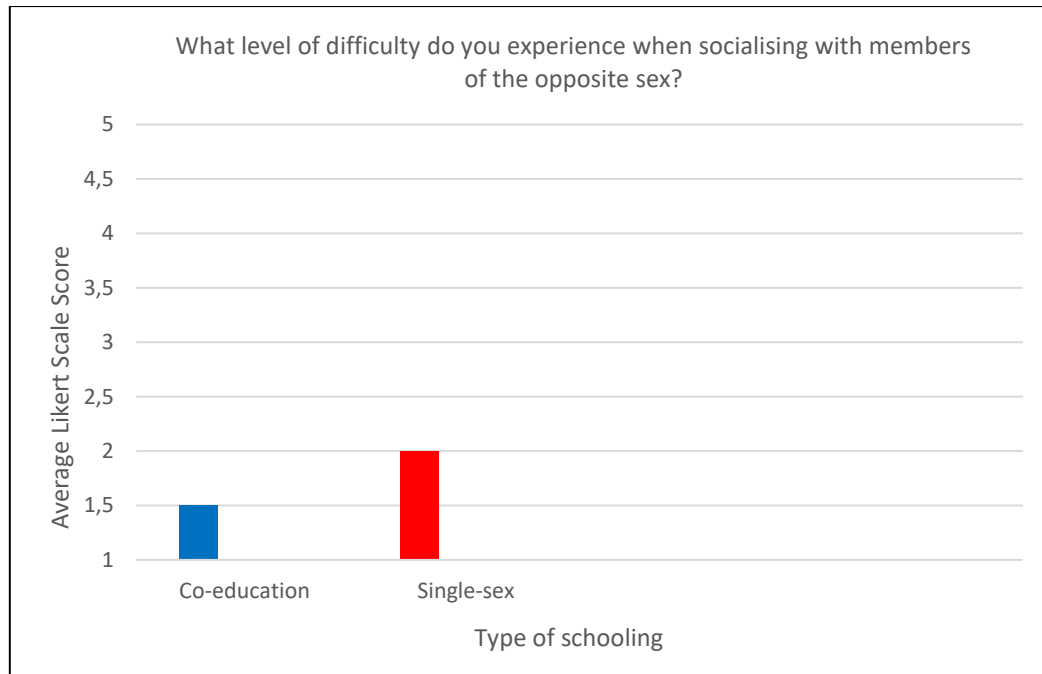


Figure 6: Analysis of the level of difficulty experienced when socialising with members of the opposite sex

The average Likert scale score for co-education participants was 1.5 out of 5, and 2.0 out of 5 for single-sex school participants. These scores fell in the range of 1-2.9 which indicated that the participants experienced little difficulty when socialising with members of the opposite sex. These results indicate that, on average, single-sex school individuals experience greater difficulty when socialising with members of the opposite sex compared to co-education individuals.

5.2.7. *Comfort with socialising*

Figure 7 indicates how comfortable participants feel when socialising with members of the opposite sex (1= high comfort; 5= no comfort).

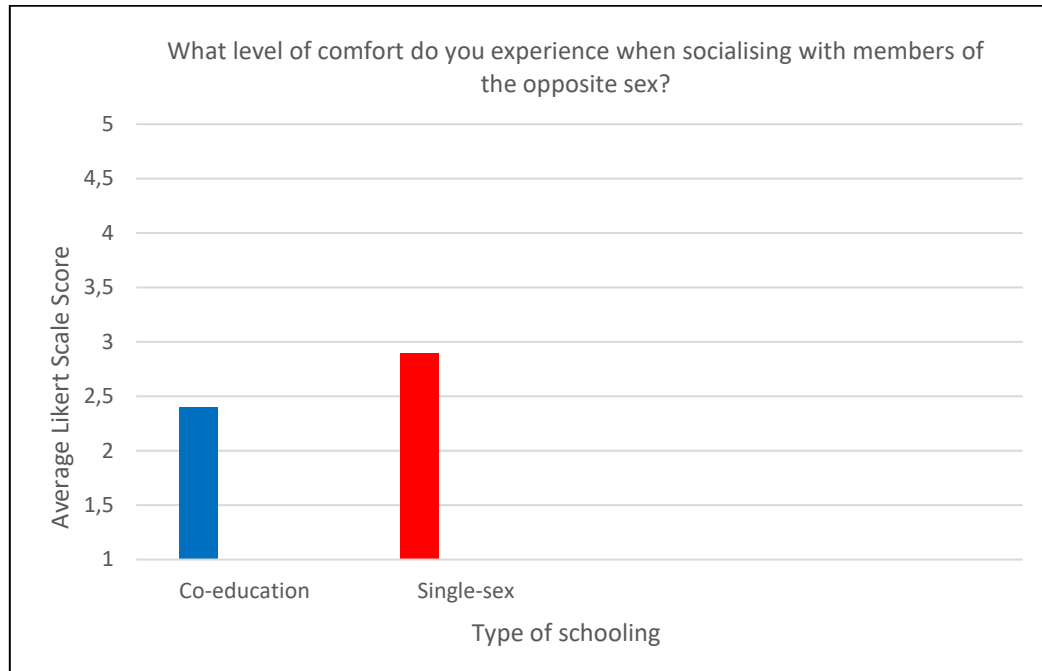


Figure 7: Analysis of the level of comfort experienced when socialising with members of the opposite sex

The average Likert scale score for co-education participants was 2.4 out of 5, and 2.9 out of 5 for single-sex school participants. These scores fell in the range of 1-2.9 which indicated that the participants were comfortable when socialising with members of the opposite sex. These results indicate that, on average, single-sex school individuals experience less comfort when socialising with members of the opposite sex compared to co-education individuals.

When analysing Figures 4, 5, 6 and 7, a study by Wong et al. (2018) supports these findings, as the researchers found that there is higher anxiety among individuals who experienced single-sex schooling. Leary et al. (2015) suggest that individuals differ from one another in the degree to which evaluations of other individuals affect them and their desire to make good and appropriate impressions on others. Thus, due to females who attended a single-sex school not interacting often with members of the opposite sex in a secondary school environment, they may not enjoy communicating or interacting with males in a tertiary environment, and may experience less comfort and more difficulty due to not wanting to make a negative impression and not having previous exposure.

5.2.8. Behavioural change when socialising

Figure 8 indicates how much the behaviour of participants changes when socialising with members of the opposite sex (1= no behavioural change; 5= high behavioural change).

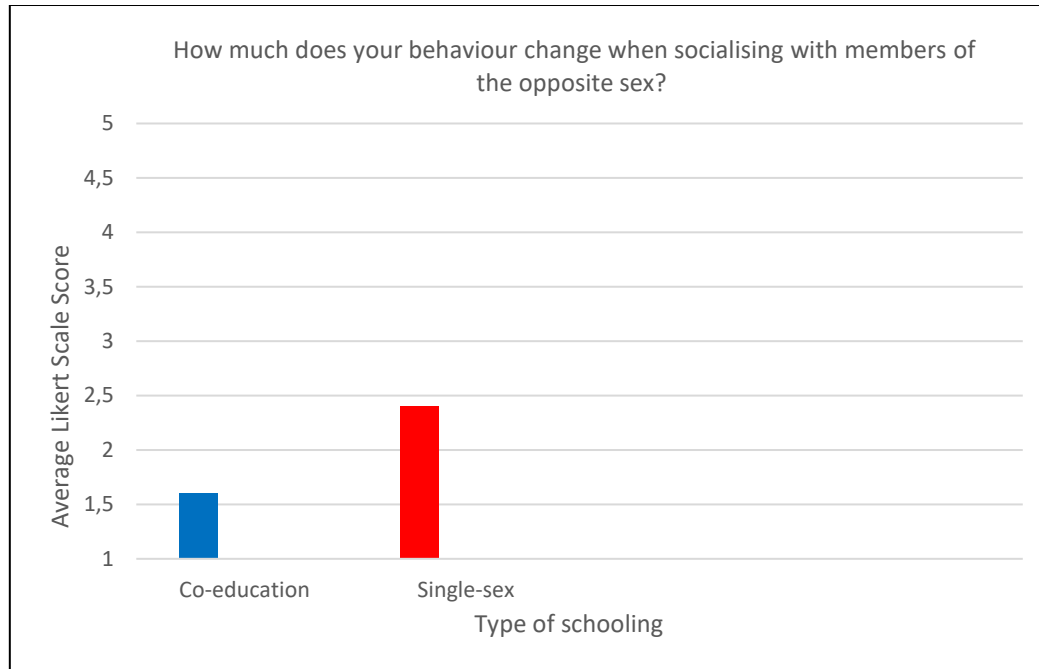


Figure 8: Analysis of the behavioural change when socialising with members of the opposite sex

The average Likert scale score for co-education participants was 1.6 out of 5, and 2.4 out of 5 for single-sex school participants. These scores fell in the range of 1-2.9 which indicated that the participants experienced a behavioural change when interacting with individuals of the opposite sex. These results indicate that, on average, single-sex school individuals display greater behavioural change when socialising with members of the opposite sex compared to co-education individuals.

A positive correlation can be made between social anxiety and behavioural discomfort (Thompson et al., 2019). In other words, anxiety experienced when members of the opposite sex interact, can be displayed in the form of behavioural symptoms. These behavioural symptoms of anxiety include fidgeting, sweating and trembling, as well as an impairment of certain language abilities such as non-fluent language, increase in pace of language or inability to use language (Thompson et al., 2019).

5.2.9. Overall comparison

Figure 9 indicates the average total Likert Scale score obtained from each category (single-sex schooling and co-education schooling).

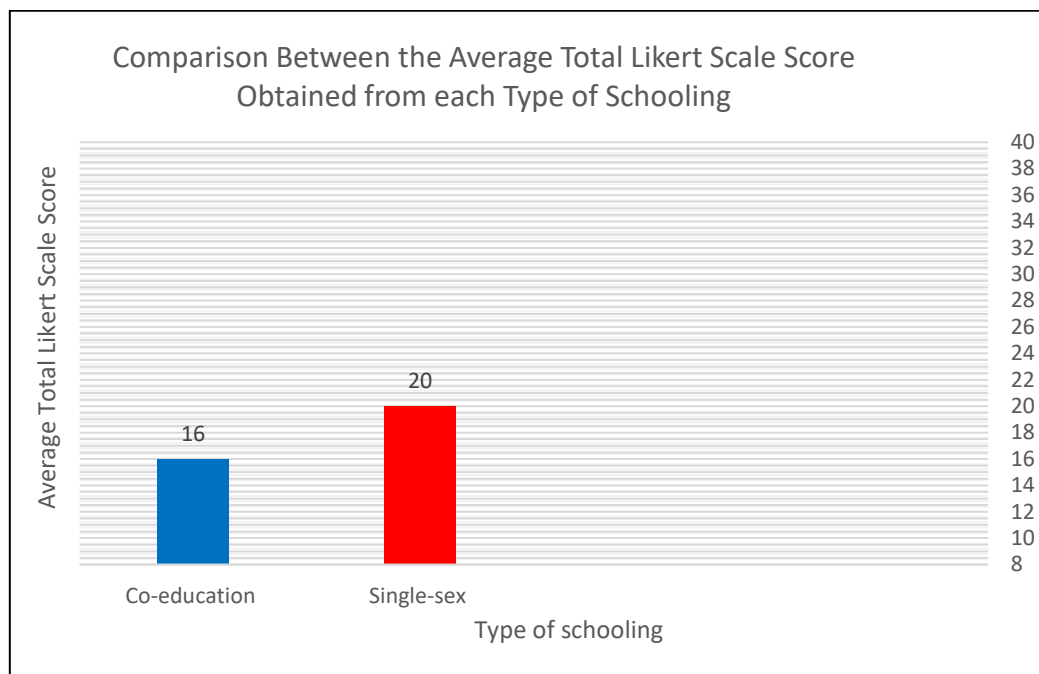


Figure 9: Analysis of the overall anxiety experienced from individuals from each type of schooling when interacting with members of the opposite sex

The total Likert scale value for single-sex school participants was 20 out of 40 points and 16 out of 40 points for co-education participants. These scores fall in the range of 8 to 23, suggestive of an individual not experiencing difficulty when interacting with members of the opposite sex in a tertiary education environment.

However, although both categories fall within this range, it is evident that there is still a difference in the Likert scale scores for each category. Therefore, on average, single-sex school participants experience more anxiety and difficulty when interacting with members of the opposite sex in a tertiary environment when compared to co-education participants.

5.2.10. Confounding, extraneous variable

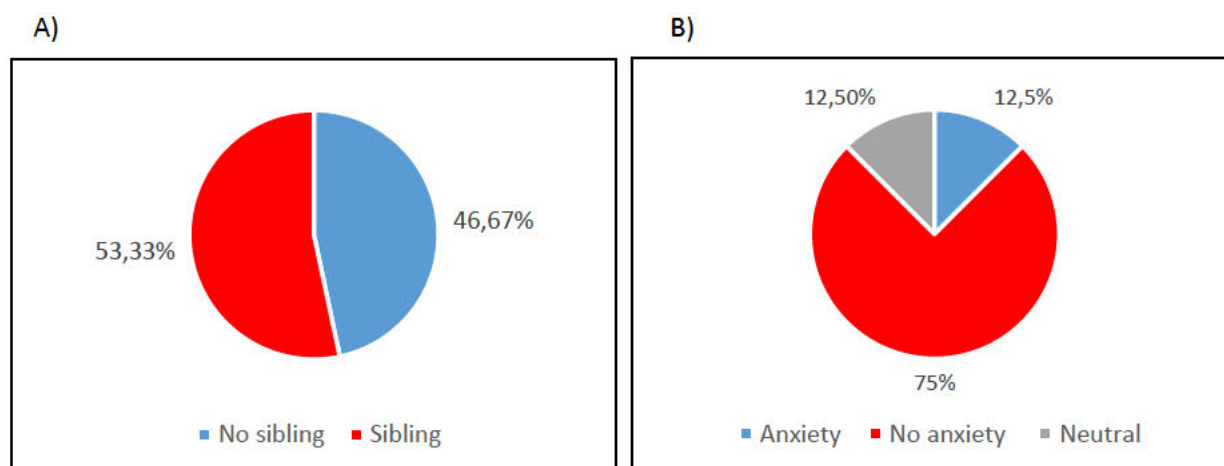


Figure 10: A) a pie chart representing the percentage of participants that have at least one sibling of the opposite sex; B) a pie chart indicating the anxiety due to interaction of the participants that have siblings of the opposite sex

According to figure 10A, out of the single-sex school participants, 53% had at least one sibling of the opposite sex. Figure 10B highlights that out of the 53% who had at least one sibling of the opposite sex, 75% did not experience anxiety, 12,5% did experience anxiety and 12,5% were neutral when interacting with members of the opposite sex.

A participant having at least one sibling of the opposite sex may have influenced the results. The fact that the Likert scores for single-sex school participants were not as high as the researcher originally predicted, suggests that having at least one sibling of the opposite sex was a confounding, extraneous variable.

5.3. Relationship with theoretical foundation

The findings from this study highlight the possible negative implications of single-sex schooling on an individual's ability to interact with members of the opposite sex. These findings support Lev Vygotsky's Social Constructivist Theory which suggests that the behaviours and mannerisms an individual learns and acquires is based on their environment and the people that they interact with. Individuals who are less likely to interact with individuals of the opposite sex, are more likely to experience greater difficulty when having to interact with individuals of the opposite sex due to the lack of familiarity and poor understanding of acceptable social cues and behaviours (Amineh & Asl, 2015).

Similarly, these findings support The Realistic Conflict Theory (RCT) which suggest that individuals experience discomfort or hostility towards individuals who they are not in regular communication with or regularly interact with (Schofield, 2009). This theory suggests that because females who attend single-sex schooling (the ingroup) rarely interact with individuals of the opposite sex (the outgroup), there is a greater sense of discomfort between both groups when compared to groups of individuals who interact more regularly (Schofield, 2009).

6. CONCLUSION

6.1. Summary of findings as they relate to the research question, problem and hypotheses.

When being presented with the research question of: "Does the school that a female individual attends (single-sex or co-education), affect their ability to interact socially with individuals of the opposite sex?" the researcher can answer this research question by accepting the Alternative Hypothesis (H1) which is: "Single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level". Although the mean Likert Scale scores fell within a range that indicated that participants did not experience difficulty when socialising with members of the opposite sex, they did indicate that, on average, single-sex school participants experienced greater difficulty when interacting with individuals of the opposite sex when compared to co-education participants. Despite having a sibling of the opposite sex, this statement remains valid. The Null Hypothesis (Ho) which is: "Single-sex schooling does not have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level", is rejected.

6.2. Anticipated contribution of the study (implications of findings)

The findings from this study highlight the potential negative psychological and social implications of single-sex schooling. These may include female individuals experiencing increased levels of anxiety when interacting with members of the opposite sex, isolating themselves and not wanting to interact with members of the opposite sex. It may also lead to them experiencing difficulty when having to work with members of the opposite sex at a tertiary education level particularly in terms of group assignments. They may also

experience difficulty interacting with members of the opposite sex when entering a working environment (Thompson et al., 2019).

In some cases, it may also influence parents' decision regarding school placement. It may influence and develop policies about schooling systems and therefore lead to the establishment of schooling systems that encourage and influence healthy behaviours and provide adequate interactions with members of the opposite sex. Research on this topic is important because with the large number of single-sex schooling systems in South Africa, it is imperative to know if there are future implications at the behavioural and communication levels when interacting with members of the opposite sex.

6.3. Ethical considerations

6.3.1. Factors that relate to the researcher

The first ethical concern was that of research misconduct, which consists of results being intentionally altered to suit the predicted results (Christensen et al., 2015). This was addressed by the use of closed ended questions which led to the interpretation of the results being fixed and not subjective. In addition, the ethical concern of objectivity was accounted for by the researcher having a supervisor who ensured that the results and interpretations of the results, remained objective (Maree, 2020).

6.3.2. Factors that relate to the participant

This research involved the ethical consideration of informed consent whereby the researcher ensured that the participants signed an informed consent document which explained what the research was about, and their role as a participant, prior to taking part in the research (Maree, 2020). Furthermore, the ethical consideration of coercion into doing the questionnaire, was addressed by ensuring that the participant knew that they had the freedom to decline participation at any point in the study (Christensen et al., 2015). Another ethical consideration was that of protecting the participants from any psychological harm, this was ensured by providing a debrief at the end as well as providing facilitating counselling by giving contact details of a psychologist or supervisor should they feel uncomfortable after completing the study (Maree, 2020). The ethical consideration of confidentiality was ensured by the researcher making it known to the participants that their answers and personal identifying information would not be made public. Lastly, the ethical consideration of anonymity was ensured by the researcher keeping the participants' identities unknown by

having no requirement for them to put their name on the questionnaire, but rather, assigning a unique alpha-numeric code for each participant (Christensen et al., 2015).

6.4. Limitations of the study

There were a few limitations that arose with this research. The first limitation that arose was if the individual taking part in the research had a sibling of the opposite sex. This hindered the results of the research due to the fact that if the female participant had a sibling of the opposite sex, regardless of the type of schooling they experienced (single-sex or co-education) they experienced less difficulty when socially interacting with members of the opposite sex, due to being accustomed to it. This limitation was mitigated by requiring the participant to place a mark in the applicable box of whether they had a sibling of the opposite sex or not. The researcher took this into consideration when analysing the results and identified trends in the data. The second limitation that arose with this research was that the sample or focus was female individuals and therefore did not represent the experiences of males who had attended single-sex schooling. Therefore, the results could only be generalised for the female population and not the entire population. The research did not take the differences between males and females into consideration. The researcher mitigated these two limitations by making it known that the research was female orientated and therefore, left an opening for more possible research to occur in the future. Another limitation was that because the research was conducted at an honours level, the sample size was small for quantitative research and therefore the results were not representative of all females in South Africa (Christensen et al., 2015). The researcher mitigated this limitation by stating that the results were not necessarily generalisable to the entire female population and the researcher attempted to use an accessible population that was still of a sufficient size (30 individuals). Utilising non-probability sampling was a limitation due to the fact that it may have introduced bias, and thus, made it difficult to generalise the results (Christensen et al., 2015). Lastly, the fact that all participants needed to be able to read and write (respond to the questionnaire) in English was a limitation. This criterion excluded individuals who do not communicate in English and who may have attended a non-English single sex school. Thus, future studies which have a multi-lingual criterion could be conducted.

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8. ANNEXURES

8.1. Annexure A - Consent form

To whom it may concern,

My name is Ashleigh James and I am a student at IIE Varsity College Sandton. I am currently conducting research under the supervision of Dr John Hunter about aiming to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment. I hope that this research will enhance our understanding of whether there are future implications (such as interacting with members of the opposite sex) that may occur when a parent sends their child to a co-education or a single-sex school. The researcher aims to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment. Identifying the relationships between the type of school a female individual attended and their ability to interact with members of the opposite sex in a tertiary institution, may help parents make decisions regarding school placement for their children. Lastly, it may also influence policies about the schooling systems and therefore, lead to the department of education establishing schooling systems that encourage and influence healthy behaviours and provide adequate interactions with members of the opposite sex. It may also make teachers or educators aware of any possible implications and therefore, lead them to create opportunities for schools to interact by having sporting events or other social events with a variety of schools and therefore, members of opposite sexes can interact socially.

I would like to invite you to participate in my study. In order to explain to you what your participation in my study will involve, I have formulated questions that I will try to fully answer so that you can make an informed decision about whether or not to participate. If you have any additional questions that you feel are not addressed or explained in this information sheet, please do not hesitate to ask me for more information. Once you have read and understood all the information contained in this sheet and are willing to participate, please complete and sign the consent form below.

What will I be doing if I participate in your study?

I would like to invite you to participate in this research because your opinions and self-reported information about your ability to interact with members of the opposite sex in a

tertiary environment after being exposed to your particular type of schooling, can be utilised in order to draw a conclusion about whether the school that a female individual attends, in terms of single-sex or co-education, affects their ability to interact socially with the opposite sex? If you decide to participate in this research, I would like to make use of online based questionnaires using SurveyMonkey (SurveyMonkey, 2020) in order for you to provide information about your subjective feelings and experiences when it comes to social interaction with members of the opposite sex. Your attitude, feelings or agreement about a particular statement will be measured in order to compare it to that of individuals who had a different schooling environment.

You can decide whether or not to participate in this research. If you decide to participate, you can choose to withdraw at any time or to decide not to answer particular interview questions.

Are there any risks/ or discomforts involved in participating in this study?

Whether or not you decide to participate in this research, there will be no negative impact on you. There are no direct risks or benefits to you if you participate in this study. You might, however, indirectly find that it is helpful to talk about your ability to interact socially with members of the opposite sex in a tertiary education environment. If you find at any stage that you are not comfortable with the line of questioning, you may withdraw or refrain from participating.

Do I have to participate in the study?

- Your inclusion in this study is completely voluntary;
- If you do not wish to participate in this study, you have every right not to do so;
- Even if you agree to participate in this study, you may withdraw at any time without having to provide an explanation for your decision.

Will my identity be protected?

I promise to protect your identity. I will not use your name in any research summaries to come out of this research and I will also make sure that any other details are disguised so that nobody will be able to identify you. I would like to ask your permission to record the interviews, but only my supervisor, I and possibly a professional transcriber (who will sign a

confidentiality agreement) will have access to these recordings. Nobody else, including anybody at The IIE Varsity College Sandton, will have access to your interview information. I would like to use quotes when I discuss the findings of the research but I will not use any recognisable information in these quotes that can be linked to you.

What will happen to the information that participants provide?

Once I have finished all interviews, I will write summaries to be included in my research report, which is a requirement to complete my Bachelor of Arts Honours in Psychology. You may ask me to send you a summary of the research if you are interested in the final outcome of the study.

What happens if I have more questions about the study?

Please feel free to contact me or my supervisor should you have any questions or concerns about this research, or if there is anything you need to know before you decide whether or not to participate.

You should not agree to participate unless you are completely comfortable with the procedures followed.

My contact details are as follows:

Name: Ashleigh James

Telephone number:

E-mail address:

The contact details of my supervisor are as follows:

Name of supervisor: Dr John Hunter

Telephone number of supervisor:

E-mail address of supervisor:

Consent form for participants

(PLEASE DO NOT WORRY ABOUT FILLING IN THE SPACES, IF YOU CONSENT TO TAKING PART IN THIS RESEARCH, BY COMPLETING THE QUESTIONNAIRE, YOUR CONSENT WILL BE AUTOMATICALLY ASSUMED BY THE RESEARCHER).

I, _____, agree to participate in the research conducted by Ashleigh James about determining whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary education environment.

This research has been explained to me and I understand what participation in this research will involve. I understand that:

1. I agree to be interviewed for this research.
2. My anonymity and confidentiality will be ensured. My name will not be revealed to the researcher or any other individual and my personal details will be kept private.
3. My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research.
4. I may choose not to answer any of the questions that are asked during the research interview.
5. I may be quoted directly when the research is published, but my identity will be protected.

Signature

Date

8.2. Annexure B - Example of questionnaire

Comfort when interacting with members of the opposite sex based on type of schooling (single-sex)

1. Please ensure that you carefully read the letter of consent before answering this questionnaire.

BY ANSWERING THIS QUESTIONNAIRE, IT WILL BE AN INDICATION TO THE RESEARCHER THAT YOU (THE PARTICIPANT) GIVE CONSENT TO TAKE PART IN THIS STUDY.

(If you do decide to stop taking part in this questionnaire, feel free to do so at any point, there is an exit button which will allow you to do so).

Instruction: Please read each statement carefully select the answer (only one answer) that best corresponds to your agreement or disagreement in the open space provided.
The first two questions are for administration purposes.

Please note: There are no incorrect answers. Please answer all items below

* 1. What type of school did you attend?

- ☐ Single-sex
☐ Co-education

* 2. Do you have sibling(s) of the opposite sex?

- ☐ Yes
☐ No

* 3. What level of anxiety do you experience when socialising with members of the opposite sex?

- ☐ No Anxiety ☐ Slight Anxiety ☐ Unsure ☐ High Anxiety ☐ Extremely High Anxiety

* 4. In your opinion, does going to a single-sex school provide an individual with an advantage when interacting with members of the opposite sex?

- ☐ Strongly Disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree

* 5. How often do you interact with members of the opposite sex?

- ☐ Never ☐ Not Often ☐ Unsure ☐ Often ☐ Very Often

* 6. Do you enjoy communicating with members of the opposite sex?

- ☐ Not At All ☐ Slightly Enjoy ☐ Unsure ☐ Enjoy It ☐ Really Enjoy

* 7. Do you enjoy interacting with members of the opposite sex?

- ☐ Not At All ☐ Slightly Enjoy ☐ Unsure ☐ Enjoy It ☐ Really Enjoy It

* 8. What level of difficulty do you experience when socialising with members of the opposite sex?

- ☐ No Difficulty ☐ Slight Level of Difficulty ☐ Unsure ☐ High Level of Difficulty ☐ Extremely High Level of Difficulty

* 9. What level of comfort do you experience when socialising with members of the opposite sex?

- ☐ No Comfort ☐ Slight Comfort ☐ Unsure ☐ High Comfort ☐ Extremely High Comfort

* 10. How much does your behaviour change when socialising with members of the opposite sex?

- ☐ No Behavioural Change ☐ Slight Behavioural Change ☐ Unsure ☐ High Behavioural Change ☐ Extremely High Behavioural Change

8.3. Annexure C - Questionnaire response of an individual who experienced co-education schooling

Respondent #13

COMPLETE

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Last Modified: Friday, August 14, 2020 10:48:01 AM
Time Spent: 00:04:39
IP Address: 41.113.115.86

QUIZ SUMMARY

25%
SCORE

10/40
POINTS

15/15
RANK

7%
PERCENTILE

QUIZ RESULTS

Correct	Incorrect	Partially Correct	Skipped	Total Questions
0	0	8	0	8

Page 1: Please ensure that you carefully read the letter of consent before answering this questionnaire.

Q1

What type of school did you attend?

Co-education

Q2

Do you have sibling(s) of the opposite sex?

Yes

Q3

What level of anxiety do you experience when socialising with members of the opposite sex?

1/5 pts

No Anxiety

1 pt

Q4

In your opinion, does going to a single-sex school provide an individual with an advantage when interacting with members of the opposite sex?

2/5 pts

☒ Disagree

2 pts

Q5

How often do you interact with members of the opposite sex?

1/5 pts

☒ Very Often

1 pt

Q6

Do you enjoy communicating with members of the opposite sex?

1/5 pts

☒ Really Enjoy

1 pt

Q7

Do you enjoy interacting with members of the opposite sex?

2/5 pts

☒ Enjoy It

2 pts

Q8

What level of difficulty do you experience when socialising with members of the opposite sex?

1/5 pts

☒ No Difficulty

1 pt

Q9

What level of comfort do you experience when socialising with members of the opposite sex?

1/5 pts

☒ Extremely High Comfort

1 pt

Q10

How much does your behaviour change when socialising with members of the opposite sex?

1/5 pts

☒ No Behavioural Change

1 pt

8.4. Annexure D - Questionnaire response of an individual who experienced single-sex schooling and had a sibling of the opposite sex

Respondent #13

COMPLETE

EditDeleteExport

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Time Spent: 00:01:56
IP Address: 105.186.7.245

QUIZ SUMMARY

35% SCORE	14/40 POINTS	10/15 RANK	40% PERCENTILE
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QUIZ RESULTS

Correct	Incorrect	Partially Correct	Skipped	Total Questions
0	0	8	0	8

Page 1: Please ensure that you carefully read the letter of consent before answering this questionnaire.

Q1

What type of school did you attend?

Single-sex

Q2

Do you have sibling(s) of the opposite sex?

Yes

Q3

What level of anxiety do you experience when socialising with members of the opposite sex?

1/5 pts

✗ No Anxiety 1 pt

Q4

In your opinion, does going to a single-sex school provide an individual with an advantage when interacting with members of the opposite sex?

3/5 pts

☒ Neutral

3 pts

Q5

How often do you interact with members of the opposite sex?

1/5 pts

☒ Very Often

1 pt

Q6

Do you enjoy communicating with members of the opposite sex?

2/5 pts

☒ Enjoy It

2 pts

Q7

Do you enjoy interacting with members of the opposite sex?

2/5 pts

☒ Enjoy It

2 pts

Q8

What level of difficulty do you experience when socialising with members of the opposite sex?

1/5 pts

☒ No Difficulty

1 pt

Q9

What level of comfort do you experience when socialising with members of the opposite sex?

2/5 pts

☒ High Comfort

2 pts

Q10

How much does your behaviour change when socialising with members of the opposite sex?

2/5 pts

☒ Slight Behavioural Change

2 pts

8.5. Annexure E - Questionnaire response of an individual who experienced single-sex schooling and did not have a sibling of the opposite sex

Respondent #15

COMPLETE

EditDeleteExport

Collector: Web Link 1 (Web Link)
Started: Sunday, August 16, 2020 7:15:28 PM
Last Modified: Sunday, August 16, 2020 7:17:14 PM
Time Spent: 00:01:46
IP Address: 197.91.136.95

QUIZ SUMMARY

78%
SCORE

31/40
POINTS

1/15
RANK

100%
PERCENTILE

QUIZ RESULTS

Correct	Incorrect	Partially Correct	Skipped	Total Questions
2	0	6	0	8

Page 1: Please ensure that you carefully read the letter of consent before answering this questionnaire.

Q1

What type of school did you attend?

Single-sex

Q2

Do you have sibling(s) of the opposite sex?

No

Q3

What level of anxiety do you experience when socialising with members of the opposite sex?

5/5 pts

✓ Extremely High Anxiety 5 pts

Q4

In your opinion, does going to a single-sex school provide an individual with an advantage when interacting with members of the opposite sex?

1/5 pts

☒ Strongly Disagree

1 pt

Q5

How often do you interact with members of the opposite sex?

4/5 pts

☒ Not Often

4 pts

Q6

Do you enjoy communicating with members of the opposite sex?

4/5 pts

☒ Slightly Enjoy

4 pts

Q7

Do you enjoy interacting with members of the opposite sex?

4/5 pts

☒ Slightly Enjoy

4 pts

Q8

What level of difficulty do you experience when socialising with members of the opposite sex?

5/5 pts

☒ Extremely High Level of Difficulty

5 pts

Q9

What level of comfort do you experience when socialising with members of the opposite sex?

4/5 pts

☒ Slight Comfort

4 pts

Q10

How much does your behaviour change when socialising with members of the opposite sex?

4/5 pts

☒ High Behavioural Change

4 pts

8.6. Annexure F - Ethical Clearance Letter



29 July 2020

Student name: Ashleigh James

Student number: 20105728

Campus: IIE's Varsity College Sandton

Re: Approval of Honours in Psychology Proposal and Ethics Clearance

HONOURS/PGDIP ETHICAL CLEARANCE LETTER

Your research proposal and the ethical implications of your proposed research topic were reviewed by your supervisor and the campus research panel, a subcommittee of The Independent Institute of Education's Research and Postgraduate Studies Committee.

There are some aspects that you still need to address in your proposal. You will need to address these aspects in consultation with your supervisor before you may proceed (see below):

Please discuss with your supervisor/navigator/lecturer how you will address these issues listed below:

Please note: Your fieldwork may only proceed once you address the following issues:

- Please make all the changes suggested/recommended by your supervisor.
- Your final interview schedule/questionnaire needs refinement. Your supervisor needs to sign off your final interview schedule or questionnaire.
- Please wait for an IIE letter approval if you plan to conduct research on an IIE site/staff/students.
- Title concerns: Same sex? Be careful here. Possible change title to include the word "heteronormative". Please chat to your supervisor about this.

In the event of you deciding to change your research methodology in any way, kindly consult your supervisor to ensure all ethical considerations are adhered to and pose no risk to any participant or party involved. A revised ethical clearance letter will be issued.

We wish you all the best with your research!

GENERAL CONDITIONS TO BE FULFILLED IN RELATION TO RESEARCH

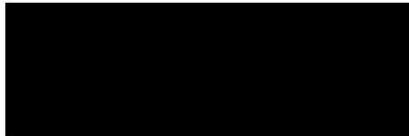
Permission is granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted.

Please note: The panel has not considered the merits, accuracy or ethical soundness of the research. The only merits examined are the use of The IIE as a sample.

Permission is granted subject to the following conditions:

1. The researcher(s) will need to obtain informed consent in writing from all of the participants in his/ her sample if the study is not anonymous.
2. The researcher(s) may only use the data collected for research purposes and in no other way.
3. Photographs of human subjects may only be taken if relevant to the research, informed consent was obtained, and even with informed consent, the photographs may not be published on any online platforms.
4. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.
5. No names or identifying information of participants may be used within the research and the research must be voluntary.
6. Please make it clear that the information will not be used punitively in any way and participants may in no way be counselled/advised based on this.

Supervisor: Dr John Hunter



Campus Postgraduate Coordinator (CPC):



JENNA-LEE RAMNARAIN

8.7. Annexure G - Concept Document Table

Exploring the differences in social interaction with the opposite sex amongst female individuals from co-education and single-sex schools: a quantitative study on female university students using questionnaires

Research Purpose/ Objective	Primary Research Question	Research Rationale	Seminal Authors/ Sources	Literature Review – Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethics	Key Findings	Recommendations
The purpose of this research is to determine whether there is a relationship between the type of schooling that a female individual receives (single-sex or co-education) and their ability to interact with individuals of the opposite sex in a tertiary environment.	Does the school that a female individual attends, in terms of single-sex or co-ed, affect their ability to interact socially with the opposite sex?	Having had personal experience with both schooling systems, the researcher wants to determine if there is a relationship between single-sex schooling and difficulty in social interaction with members of the opposite sex amongst female individuals in a tertiary education environment. This would highlight the potential negative psychological and social implications of single-sex schooling and may influence education policies in future. In some cases, it may also influence parents' decision regarding school placement. This would highlight significant barriers between members of the opposite sex.	Theory 1: Amineh & Asl (2015). Theory 2: Schofield (2009). Theme 1: Eliot (2013); ISASA (2020); Lasser (1987). Theme 2: Burgess, Greaves, Vignoles and Wilson (2015); Eliot (2013), Theme 3: Misyak, Melkonyan, Zeitoun and Chater (2014); Thompson, Van Zalk, Marshall, Sargeant and Stubbs (2019); Vaughn and Witko, 2013). Theme 4: Leary, Jongman-Sereno and Diebels (2015); Thompson, Van Zalk, Marshall, Sargeant and Stubbs (2019); Wong, Shi and Chen (2018). Theme 5: Eliot (2013); Lasser (1987); Maeng & Milad (2015); Wong, Shi and Chen (2018).	Theme 1 the meaning of what single-sex schools are and the meaning of co-education schooling. Theme 2 why children attend these schools and why parents place their child in the chosen school. Theme 3 what social interaction is Theme 4 what is meant by anxiety in the context of individuals who experienced single-sex schooling and the symptoms. Theme 5 individuals who experienced single-sex schooling tend to have less friends of the opposite sex.	Paradigm Positivism Epistemology To provide real and objective research (positivist view). Ontology Utilised in order to make generalisations about the results obtained. Axiology The research conducted is an objective way to gain information.	Quantitative approach	Closed-ended, online based questionnaires using 'SurveyMonkey' were used so that participants' opinions and self-reported information could be measured.	1) Research misconduct - use of closed-ended questions ensured fixed interpretation of results. 2) Coercion of participant into participating in study- ensured participant understood that she had freedom to decline participation at any point. 3) Confidentiality of participant- answers and personal identifying information were not made public. 4) Anonymity of participant- no identifying information of individual was present.	Individuals who experienced single-sex schooling have difficulties when socialising with members of the opposite sex in a tertiary environment. They experience feelings of anxiety when communicating with members of the opposite sex.	Future studies should be conducted on this topic in the case of siblings of the opposite sex. For example, looking at age difference. This research was female orientated and therefore, left an opening for more possible research to occur in the future which would look at males. Thus, allowing for a comparison between males and females. Due to the questionnaire being in English, future studies which have a multi-lingual criterion could be Conducted.
						Population				
						Target population: all individuals who are currently in their first year of tertiary education and have previously attended a school in which they received single-sex schooling or co-education. Accessible population: female first year university students who matriculated the previous year, that the researcher had contact details of, or had mutual acquaintances with.				
Research Problem	Secondary Questions/ Hypotheses/ Objectives	Key Concepts	Key Theories			Sampling	Data Analysis Method(s)	Limitations	Key Contribution	
In South Africa, many parents send their children to single-sex schools. As a result, females who attend single-sex schools may experience difficulties in social interaction with individuals from the opposite sex when entering a tertiary environment. This could have a negative impact on their ability to socialise with the opposite sex. This may have further repercussions on friendships, romantic relationships and professional relationships.	Null Hypothesis (Ho): Single-sex schooling does not have a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level. Alternative Hypothesis (H1): Single-sex schooling has a negative impact on a female individual's ability to socialise with individuals of the opposite sex at a tertiary education level.	Single-sex schooling Co-education schooling Anxiety Social interaction Tertiary Education Relationships	Lev Vygotsky's Social Constructivist Theory and the Realistic Conflict Theory			Non-probability sampling Convenience sampling method Snowball sampling method Fifteen (15) female individuals who experienced co-education schooling and fifteen (15) female individuals who experienced single-sex schooling and are currently in their first year of tertiary education.	Unit of Analysis: Individuals Data analysis methods: Descriptive Statistics: Mean was calculated. Inferential statistics.	1) If the individual taking part in the research has a sibling of the opposite sex 2) Sample is female and therefore does not represent the experiences of males who have attended single-sex schooling. 3) The research, does not take the differences between males and females into account. 4) Sample size is small and the results cannot be generalised across all females.	An inadequate development of social interaction affects females academically (in terms of group assignments where working with members of the opposite sex is inevitable) at a tertiary level, personal and work relationships and with their self-confidence.	