# Gender Segregation and Sexism: Does Schooling Type Predict Ambivalent Sexism in Later Life?

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Abstract

Research into segregated schooling has indicated that there is an increased level of gender-stereotyping evident when compared to co-educational schooling. Drawing from Developmental Intergroup Theory this study aimed to expand on the current literature to determine whether schooling type (single-sex or co-educational) was associated with ambivalent sexism in later life. The hypotheses presented were that schooling type would add predictive utility to models of ambivalent, hostile, and benevolent sexism that already included known influences on levels of sexism – gender, age, religiosity, authoritarianism, and social dominance orientation. Participants were recruited through social media using a snowball sampling technique (N=213) and completed an online survey containing demographic information, the Ambivalent Sexism Inventory, the Religious Orientation Scale - Adapted, the Very Short Authoritarianism Scale, and the Short Social Dominance Orientation Scale. Results of hierarchical regression analyses found that schooling type did not significantly predict levels of ambivalent, hostile, or benevolent sexism. This study indicates that while prejudice may be more apparent within segregated schooling, this effect is not maintained over time. The results of the present study suggest that policies aimed at promoting positive intergroup contact may be a more effective method of reducing stereotyping and sexism than focusing on the segregation or the integration of schooling types.

*Keywords:* single-sex schooling, segregation, ambivalent sexism, intergroup, gender stereotypes

## Table of Contents

## Introduction

*"We still think of a powerful man as a born leader and a powerful woman as an anomaly."*

**—** *Margaret Atwood*

Debate into the advantages of single-sex schooling and co-educational schooling are ongoing (Pahlke, Hyde, & Allison, 2014). Proponents of single-sex (SS) schooling cite maturation, aptitudes, disruptive behaviour, participatory style, and interests as reasons that SS schooling is more beneficial to students than co-educational (CE) schooling (see Bigler, Hayes, & Liben, 2014). Though some studies have supported this view (Basow, 2010; Chadwell, 2010; Gurian, Henley, & Trueman, 2001; Sax, 2005), more recent studies have found that no such differences are apparent when factors such as novelty and resources are accounted for (Halpern et al., 2011; Hayes, Pahlke, & Bigler, 2011; Jackson, 2012). Proponents of SS schooling have also stated a reduction in gender-stereotyping amongst the benefits. While a few outdated studies seem to have supported this view (Lee & Bryk, 1986; Riordan, 1990), Mael et al.'s (2005) meta-analysis of the data determined that not enough quantitative analysis had been conducted to make such a judgement. In fact, further research into the area has shown the opposite with SS schools exhibiting more gender-stereotyping than CE schools (Datnow, Hubbard & Woody, 2001; Fabes, Pahlke, Martin & Hanish, 2013; Halpern et al., 2011; Fabes, Martin & Hanish, 2004). As the majority of these studies have been conducted within the confines of the schooling system, research has yet to determine whether there are long-lasting societal effects to gender-segregation at such a formative time in development, namely that of sexist attitudes and beliefs in later life. The aim of this study then is to address this gap in the literature by attempting to determine whether schooling type

(single-sex vs co-educational) would predict levels of ambivalent sexism when taking potential confounding variables into account. The theory of ambivalent sexism will be discussed, as will factors that have been demonstrated to impact sexism levels in previous studies, this study also explores how Developmental Intergroup Theory provides support to the hypothesis that schooling may be a factor in predicting sexism levels.

## Ambivalent Sexism

Sexism is still a pervasive force in society today and though progress has been made in the fight for equality, women are still underrepresented in regards to political and economic power and are subject to pay inequality (World Economic Forum, 2018), and are at an increased risk of sexual and domestic violence (Brandt, 2011; European Union Agency for Fundamental Rights, 2014). Sexism is generally referred to as the belief that one sex is inferior to the other (Abrams, Viki, Masser, & Bohner, 2003), and as patriarchal societies are predominant cross-culturally sexism is typically demonstrated against women (Lockard, 2020). For the purpose of this study, and in line with previous literature, sexism shall be operationalised as "the tendency to denigrate women through a justification of patriarchy, to maintain gendered beliefs about the roles and privileges of women and men, and to idealize women's traditional roles in society" (Swami & Voracek, 2013, p. 169). While there are a number of theories about the nature of sexism, Glick and Fiske's Ambivalent Sexism Theory (1996) has gained strong empirical support over the years (Abrams et al., 2003; Cowie, Greaves, & Sibley, 2019; Glick et al., 2000, 2004). Ambivalent sexism refers to a duality in the nature of sexism, attempting to explain the reasons that women are simultaneously viewed both favourably and contemptibly in a society (Eagly & Mladinic, 1994; Krys et al., 2018). One dimension is that of hostile sexism, which is viewed as overt negative beliefs and

attitudes about women that are typically demonstrated when a woman varies from their traditional gender role, or challenges male power (Glick et al., 2000). Benevolent sexism is the other dimension that, while sounding somewhat positive, is the more insidious form of sexism as it allows the status quo within patriarchal societies to be maintained. Benevolent sexism is viewed as the positive reinforcement of gender stereotyped roles where adherence to these roles is viewed favourably. In this context, women are seen as gentle, kind, and caring and as such are seen in a positive light when maintaining positions in society that adhere to this notion (housewife, caregiver etc.), however this view also works on the assumption that women need protection and are less competent than males (Glick et al., 2000; White & Gardner, 2009). It is a subtler form of sexism that can be endorsed by men and women alike and which allows gender inequality to be perpetuated. Benevolent sexism is at its heart a condescending view of women, though both sexes may see such "chivalrous" attitudes as agreeable and prosocial (Glick & Fiske, 1996). Studies have shown that women who endorse such views are less inclined to acknowledge gender disparity (Connelly & Heesacker, 2012; Jost & Banaji, 1994) and are more willing to accept sexist restrictions put in place by partners (Moya et al., 2007). It is when women step out of these traditional roles and challenge the social hierarchy of men that hostile sexism is typically seen. As such, women are commended for following gender stereotypes and denigrated when they stray from them. Women's resistance to the high-power status of men is undermined by the positivity they receive when they comply to a submissive role and as such allows for hostile sexism to be supported when women step outside of these gender "norms". Hostile and benevolent sexism are correlated and therefore seen as complementary ideologies (Glick & Fiske, 2001), and it is through such ambivalence that gender inequality is maintained. Though hostile and benevolent sexism are correlated, they are also individually predictive of certain behaviours –

hostile (but not benevolent) sexism has been demonstrated to predict male sexual harassment of women (Begany & Milburn, 2002), women's benevolent (but not hostile) sexism has predicted perceptions of their husband feeling threatened by their success (Expósito, Herrera, Moya, & Glick, 2010), men's playing of "sexist" video games has been associated with increased levels of benevolent sexism (Stermer & Burkley, 2015), and relationship experience has predicted an increase in hostile sexism in girls but an increase in benevolent sexism in boys (de Lemus, Moya & Glick, 2010). Ambivalent sexism has been shown to be predictive of gender inequality cross-culturally (Glick & Fiske, 2001).

## Factors Impacting Sexism

### Gender

Gender differences have been demonstrated in the study of sexist attitudes. In patriarchal societies, men typically dominate high-status jobs while women are assigned less meaningful roles (Hammond & Sibley, 2011; Glick & Fiske, 2001; Glick et al., 2000; Glick et al., 2004). In a society where women have less power it would appear that this difference is due to conscious or unconscious sexist beliefs. While there is a perception that women are underrepresented in high powered jobs due to a lack of ambition (Chesterman, Ross-Smith, & Peters, 2005), studies have found that gender inequality has been positively correlated with sexism (Glick & Fiske, 2001). As previously mentioned, hostile sexism is demonstrated as overt negativity towards women, and males generally score higher on this measure than women (Becker, 2010). Benevolent sexism is the force that keeps the status quo in check with both women and men typically scoring high on this measure (Becker & Wright, 2011; Glick et al., 2000).

### Age

Age differences can also be seen in studies aiming to determine factors affecting sexist attitudes and beliefs. Studies have shown that sexism decreases as one ages, thought to be due to increased interactions with the opposite sex as well as an increased awareness of the problems associated with gender-stereotyping and expressing sexist attitudes (de Lemus, Moya, & Glick, 2010; Fernández, Castro, & Torrejón, 2001). Research has also demonstrated that benevolent sexism may increase as those within romantic relationships may view "chivalrous" attributes with positivity (Montañes, et al., 2013). Other studies have found that sexism levels progressed in a U-shaped trajectory over time, with adolescents becoming less sexist as they aged but sexism levels rising again in older age (Fernández, Castro, & Lorenzo, 2004; Gariagordobil & Aliri, 2013, Hammond, Milojev, Huang, & Sibley, 2018).

### Religiosity

Religiosity has been shown to relate to sexism in a number of ways. It has been demonstrated that individuals with conservative religious beliefs endorse traditional gender roles (Jensen & Jensen, 1993; Sanchez & Hall, 1999; Wilcox & Jelen, 1991) and while studies have shown that religiosity predicts benevolent sexism primarily (Burn, & Busso, 2005; Glick, Lameiras, & Castro, 2002), Taşdemir & Sakallı-Uğurlu (2010) found that religiosity predicted both hostile and benevolent sexism across genders.

### Authoritarianism

Authoritarianism is viewed as the desire to maintain social order, stability and control, and in maintaining traditional values - those with authoritarian beliefs tend to view the world as a threatening place (Altemeyer, 1981). Meta-analysis and longitudinal data have indicated that

benevolent sexism in men was motivated by such authoritarianism through the desire to preserve traditional roles and values and through the maintenance of group cohesion (Sibley, et al., 2007). Accordingly, authoritarianism in males predicted prejudice against those that were viewed as dissident (Duckitt & Sibley, 2007). Authoritarianism in women was associated with traditional career choices and family outcomes (Duncan, Peterson, & Ax, 2003). Studies indicate that authoritarianism is correlated with sexism (Lee, 2013).

### Social Dominance Orientation

Social Dominance Orientation (SDO) is seen as the desire for group-domination and superiority, those high in this quality view the world as a competitive place where inequality is actually strived for (Duckitt, 2006). While SDO is highly correlated with authoritarianism, it differs in that it is primarily associated with hostile sexism as opposed to benevolent sexism as the aim is to subjugate outgroups (Christopher & Mull, 2006). SDO has been shown to predict various forms of prejudice (Duckitt & Sibley, 2007; Roets & Van Hiel, 2006; Sibley, Overall, & Duckitt, 2007) and has been positively correlated with hostile sexism (Sibley, Wilson, & Duckitt, 2007).

## Developmental Intergroup Theory

Various theories have attempted to explain early prejudice, such as sexism, in terms of cognitive processes that allow children to develop and maintain stereotypes (Aboud, 2005; Martin, Ruble, & Szkrybalo, 2002) - however such theories fail to address why stereotypes (and in turn prejudice) develop for certain categories. For example, typical categories that are stereotyped are gender and race, as opposed to handedness (right/left) or eye colour (Bigler &

Liben, 2007). Developmental Intergroup Theory (DIT; Bigler & Liben, 2006) attempts to address this failing by building on the work of intergroup and self-categorization theorists (Tajfel & Turner, 1986; Turner et al., 1987), and the previously mentioned cognitive-developmental theorists.

DIT proposes that children infer which social categories are important from environmental information. Attributes such as gender and race are perceptually apparent to children and these categories are then reinforced through routine labelling from adults. This act of categorisation prompts the beginnings of social stereotypes as beliefs are subsequently formed about these groups. Essentialist thinking, that certain groups contain unseen important characteristics, contribute to this stereotyping (Gelman, 2003). DIT also posits that children form beliefs based on conscious or unconscious attitudes displayed by adults towards categorised groups. While arguments have been made that stereotypes usually contain certain truths which allow individuals to make judgements about groups without much cognitive effort (Bem, 1981), many stereotypes are meaningless. As Bigler and Liben (2007) highlighted, no one correlates gentleness or ironing with hair colour, yet it is often so for gender. This is purported to be information internalised from their environment. DIT proposes that heightening the saliency of social categories increases prejudice along those lines and practices such as segregation are the ultimate example of this.

Empirical support for DIT comes from studies where novel social groups are created and conditions are experimentally manipulated. In a study conducted by Bigler, Brown and Markell (2001), elementary school students were divided into groups and given different coloured t-shirts per group. Groups were seated together based on their t-shirt colours and given tasks to complete in their individual groups, there were no competitive tasks and teachers did not favour one group over another. Even so, having heightened a social category

(i.e. colour group) by teachers addressing each group by their assigned colour, children developed intergroup biases based on the colour of their t-shirts after the 6-week experiment. Another such study that demonstrates this saw a preschool class divided into two groups, a "gender" group where teachers emphasised gender by the use of gender classifications and a "control" group one where they did not (Bigler, 1995). The group in which gender was made highly salient showed stronger gender stereotypic beliefs and gave fewer positive ratings about their opposite sex peers after the 4-week experiment. Experimental research such as this allows causation of such prejudice to be inferred.

**Gender Segregation and Sexism**

While research that has been used to support the segregation of genders in academic settings has been largely discredited, single sex schooling is on the rise. Since the amendment of Title IX in the US in 2006, which allows for public funding to be used in SS schooling, there has been a steady increase in the amount of gender-segregated classes and schools (Klein & Sesma, 2010). In Ireland, almost 40% of secondary schools are reported to be SS, not accounting for primary schools or gender segregated classrooms within co-educational schools (Central Statistics Office, 2018). In SS schooling the saliency of gender is hightened and used as a dividing category, and according to DIT this divide would increase intergroup biases and in turn promote sexist attitudes (Bigler & Liben, 2006; Hilliard & Liben, 2010).

When children are segregated in such a manner this can result in individuals being less comfortable in the company of the opposite gender and increase gender stereotyping, leading to these individuals wishing to spend less time in the company of the other gender – this has been referred to as the gender segregation cycle (Fabes, Martin, Hanish, Galligan, & Pahlke,

2015). Though research has shown that children tend to naturally select same-sex peers as friends, those that spend more time with same-sex peers tend to display more gender-stereotypic behaviours. In Martin and Fabe's (2001) study, this gender stereotypic behaviour was demonstrated as increased aggressive behaviour for boys and increased belief in gender roles for girls. It is also important to note that within these gender segregated classes teachers are being encouraged to precipitate stereotypes as is evidenced with the instruction to teach boys in a more "confrontational" environment and that girls should not be taught under stressful conditions (Sax, 2005). Fabes, Pahlke, Martin and Hanish (2013) found that enrolment in single-sex classes demonstrated a 14% increase in the likelihood of responding in a stereotypic way for each class taken.

Measures to counterbalance this stereotypic behaviour can be seen in Allport's Contact Theory which purports that prejudice can be reduced by intergroup contact. Pettigrew and Tropp's (2006) meta-analysis of Intergroup Contact Theory found that intergroup contact significantly reduced intergroup prejudice and that experimental studies show "that contact can cause meaningful reductions in prejudice" (p. 766). Faris and Felmlee (2011) found that aggression and intergroup prejudice decreased when cross-gendered interactions increased and Hodson (2011) demonstrated both experimentally and longitudinally that intergroup contact decreases prejudice, supporting both Developmental Intergroup Theory and Intergroup Contact Theory.

**The Present Study**

While many of the academic arguments for single-sex schools have been largely refuted (Lenroot et al., 2007; Pashler, McDaniel, Roherer, & Bjork, 2009; Signorella et al, 2013), research into the long-term social effects of SS schooling are lacking. As school age is

an extremely crucial time in development, especially in how we learn to interact with peers, the effects of gender segregation need to be examined. Karpiak, Buchanan, Hosey, and Smith (2007) found that boys that had attended a single-sex school displayed lesser egalitarian gender attitudes than those that had attended CE schooling, and a large scale UK study found that men who had attended SS schools were more likely to be divorced in their early 40's than those that had attended CE schools (Sullivan, Joshi, & Leonard, 2010). Studies such as these demonstrate that there may well be far reaching consequences to gender segregation at an early age and more research into these effects needs to be conducted

DIT supports the idea that gender segregation throughout schooling would influence gender stereotypic beliefs which may in turn become prejudicial (i.e. sexist). Using Glick and Fiske's (1996) ambivalent sexism inventory allows one to not only determine whether schooling type is associated with sexism levels in later life, but also whether it is more predictive of hostile sexism or benevolent sexism as the literature has demonstrated that certain conditions may predict one but not the other. Hostile sexism may be more apparent in SS schooling due to an ingroup/outgroup mentality, and benevolent sexism may be more apparent in CE schools where negative comments from boys have been shown to reduce girls' interest in STEM subjects (Pahlke, Hyde, & Allison, 2014). The literature in the area relating to the societal effects of gender segregation in later life are quite minimal and as such more research in this area may help guide educational policy in the future. To address this gap in the literature the present study aims to determine whether schooling type (single-sex vs co-educational) predicts levels of ambivalent sexism, as well as its two sub-dimensions hostile and benevolent sexism, in later life. Based on the research, this study aims to control for confounding variables that have previously shown an influence on sexism levels, namely that of gender, age, religiosity, authoritarianism and social dominance orientation.

Apropos of previous research it is hypothesised that

(1) Schooling type will add predictive utility to a model of *ambivalent* sexism that already includes gender, age, religiosity, authoritarianism, and social dominance orientation.
(2) Schooling type will add predictive utility to a model of *hostile* sexism that already includes gender, age, religiosity, authoritarianism, and social dominance orientation.
(3) Schooling type add predictive utility to a model of *benevolent* sexism that already includes gender, age, religiosity, authoritarianism, and social dominance orientation.

# Methods

## Participants

Participants were recruited using an opportunistic snowball sampling technique. A brief description of the study and a link to the survey was distributed through the following social media sites: Facebook, Football365Forum, and participants were also invited to share the link with any others that they thought eligible to participate. As hierarchical regression analyses were conducted in this study, G*Power: Statistical Power Analyses (Faul, Erdfelder, Buchner, & Lang, 2009) was used to determine the sample size required for a statistically powerful analysis. As such, there was a 95% chance that the *R*-squared value would significantly differ from zero with a sample size of 112 or over, reducing the likelihood of a Type I error. No incentives were used in recruiting participants.

The initial sample consisted of 255 individuals over the age of 18 drawn from a community sample. 41 individuals were excluded from the analyses as they had attended both a single-sex school/class and a co-educational school/class during primary and secondary school and were not eligible for participation in the study. Furthermore, due to the nature of the study, the analyses were restricted to participants who identified as either male or female, therefore 1 non-binary participant was excluded. The final sample then, comprised of 213 individuals (97 males and 116 females), with a mean age of 40.14 years (SD = 11.35) ranging from 21 to 71. 36.2% had attended a single-sex school/class (N = 77) and 63.8% had attended a co-educational school/class (N = 136).

## Measures

**Demographics**. Participants were asked to indicate gender (male, female, other) and to provide their age. Participants were also asked to indicate which schooling type they had

attended (single-sex primary and secondary school/class only, co-educational primary and secondary school/class only, other) and to read this question carefully before answering.

**Ambivalent Sexism Inventory.** The Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996), a 22-item self-report measure, was used to determine participants' levels of ambivalent sexism towards women. Users read 22 statements and rated them on a 6-point Likert Scale from 0 (disagree strongly) to 5 (agree strongly). The scale also consisted of two sub-scales that measured Hostile Sexism (11-items), as well as Benevolent Sexism (11-items). An example of an item relating to Hostile Sexism is as follows: *Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality."* An example of an item relating to Benevolent Sexism is as follows: *A good woman should be set on a pedestal by her man.* Items 3, 6, 7, 13, 18, and 21 were reverse scored, and total scores per participant were then averaged. The Ambivalent Sexism Inventory has empirically demonstrated high levels of reliability and validity over time (Glick & Fiske, 2011) through use in large-scale cross-national studies (Glick et al., 2000, Glick et al., 2004). Higher scores indicate higher levels of sexism. The overall ASI score, as well as the HS and BS subscale scores, each have internal consistency reliability with alphas averaging in the .8 to .9 range. In the current study, the Cronbach alpha coefficient for the Ambivalent Sexism Inventory was .85. The Cronbach alpha coefficient for Hostile Sexism and Benevolent Sexism were .81 and .78 respectively.

**Religious Orientation Scale - Adapted.** The Religious Orientation Scale - Adapted (Chow, 2017), a 5-item self-report measure, was used to determine participants' levels of religiosity. Users read 5 statements and rated them on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). An example of an item is as follows: *I try hard to carry my religion over into all my other dealings in life.* Higher scores indicate higher levels of

religiosity. This measure is based on the Religious Orientation Scale developed by Allport and Ross (1967) and has been used in the study of death anxiety with a Cronbach alpha coefficient of .89 (Chow, 2017). The Cronbach alpha coefficient for the current sample was .87.

**Very Short Authoritarianism Scale.** The Very Short Authoritarianism Scale (Bizumic & Duckitt, 2018), a 6-item self-report measure, was used to determine participants' levels of authoritarianism. Users read 6 statements and then rated them on a 9-point Likert scale from 0 (very strongly disagree) to 8 (very strongly agree). An example of an item is as follows: *What our country needs most is discipline, with everyone following our leaders in unity.* Items 1, 4, and 5 were reverse scored. Higher scores indicate higher levels of authoritarianism. This scale, based on the widely used Right Wing Authoritarianism scale (Altemeyer, 1981), has shown high levels of discriminant, concurrent, and predictive validity reporting similar results to the original, and a Cronbach alpha coefficient ranging from .71 to .79. In the current sample the Cronbach alpha coefficient was .62. Although this figure indicates lower internal consistency reliability than is typically deemed acceptable the measure will still be included in the study as it is measuring a potential confounding variable and not the variable of interest, however caution will be applied when interpreting the results.

**Short Social Dominance Orientation Scale.** The Short Social Dominance Orientation Scale (Pratto et al., 2012), a 4-item self-report measure, was used to determine participants' propensity for prejudice and their preferences for group dominance versus equality. Users read 4 statements and then rated them on a 10-point Likert scale from 1 (Extremely Oppose) to 10 (Extremely Favour). An example of an item is as follows: *In setting priorities, we must consider all groups.* Higher scores indicate higher levels of social dominance orientation. This measure, a shortened version of the author's original Social

Dominance Orientation Scale (Pratto et al., 1994), has shown high levels of validity across 20 countries and a Cronbach alpha coefficient ranging from .34 to .80. The Cronbach alpha coefficient for the current sample was .75.

**Design**

The present study used a quantitative approach with an observational, cross-sectional design. To investigate all three hypotheses, a between-participants design was used. The predictor variables were those of gender, age, degree of religiosity, degree of authoritarianism, degree of social dominance orientation, and schooling group (single-sex/co-educational), while ambivalent sexism, hostile sexism, and benevolent sexism were individually used as criterion variables for the three analyses conducted.

**Procedure**

Data was collected online through a Google Forms survey. First, this survey was piloted to three individuals to determine the length of the survey and to make sure no issues were encountered. The average time for completion of the survey was 7 minutes and there were no issues found. Their data were excluded from analysis. The participation information sheet was then updated to include that the approximate length of time to complete the survey was 10 minutes (rounded up to ten for the sake of convenience), and the survey was subsequently posted online. The survey was posted in various Facebook groups and on the Football365Forum with a brief description of the study, the eligibility criteria for participation, and it invited anyone who wished to take part in the study to click the link. The first page of the survey contained a Participant Information Sheet detailing the nature and purpose of the study, the author, organisation, and supervisor to which they may pose questions to prior to commencement of the survey, and the requirements for eligibility in

participating (see Appendix A). Participants were informed that their participation was voluntary, and if they so choose to take part in the study, they could withdraw that consent at any time without penalty. The only stipulation to this was that after results were submitted, they would be unidentifiable and so withdrawal after this point was not possible.

The next page of the survey contained the Consent Form, this again outlined the nature of the study (see Appendix B). To proceed with the survey, participants were required to verify that they consent to voluntarily take part in the study and that they were over 18 years of age. The next page asked for demographic information pertaining to age, gender and schooling (see Appendix C). The Ambivalent Sexism Inventory (see Appendix D), the Religious Orientation Scale – Adapted (see Appendix E), the Very Short Authoritarianism Scale (see Appendix F), and the Short Social Dominance Orientation Scale (see Appendix G) then followed this. The last page of the survey contained a Debriefing Form again detailing the nature of the study and thanking individuals for their participation (see Appendix H). Various helpline numbers were also provided on this page in the event that some survey items may have caused psychological distress to participants. Participants were also informed that they may share the link with any person that may be interested and that fits the eligibility criteria.

This research study was approved by the National College of Ireland's Ethics Committee and is in line with The Psychological Society of Ireland Code of Professional Ethics (2010) and the NCI Ethical Guidelines and Procedures for Research involving Human Participants. Though no obvious harm was expected to be encountered from this study the debriefing form included helpline numbers in the event that any participant felt psychologically triggered by the material presented.

## Results

Descriptive statistics for demographic variables are presented in Table 1 for both the single-sex and co-educational groups. 36.2% of participants attended both a single-sex primary and secondary school/class and 63.8% of participants attended both a co-educational primary and secondary school/class. 45.5% of the sample were male (N = 97) and 54.5% were female (N = 116).

**Table 1**

*Frequencies for the current sample of single-sex sex and co-educational schooling groups on each demographic variable (N = 213)*

| Variable | | N | Valid Percentage |
|---|---|---|---|
| **Schooling** | | | |
| Single-sex school/class | | 77 | 36.2 |
| Co-educational school/class | | 136 | 63.8 |
| **Gender** | | | |
| Single-sex school/class | Male | 29 | 37.7 |
| | Female | 48 | 62.3 |
| Co-educational school/class | Male | 68 | 50 |
| | Female | 68 | 50 |
| **Age** | | | |
| Single-sex school/class | 21-32 | 21 | 27.3 |
| | 33-43 | 17 | 22.1 |
| | 44+ | 39 | 50.6 |
| Co-educational school/class | 21-32 | 52 | 38.2 |
| | 33-43 | 55 | 40.4 |
| | 44+ | 29 | 21.3 |

Means (M) and standard deviations (SD) for all continuous variables are presented in Table 2. Participants had a mean age of 40.14 years (SD=11.35), ranging from 21 to 71. A more comprehensive view of the comparative means for all continuous variables for the single-sex and co-educational groups can be seen in Figure 1, and in table format (see Appendix I). A significant result ($p < .05$) of the Kolmogorov-Smirnov statistic was found for all continuous variables indicating that the data is non-normally distributed, and inspection of the histograms show that the data are positively skewed. Attempts to transform the data did not result in a removal of the skewness and as such were not applied, however in line with the central limit theorem the current sample size is large enough to assume that the sample means are well-approximated by a normal distribution and as such the distribution of scores will be treated as normal. Eleven outliers were identified and after inspecting the data it was seen that the responses were within the boundaries of possible scores on the measures, the apparent homogeneity of the sample may cause these scores to appear as outliers. Conducting analysis with the outliers removed did not show any variation in results and so they were included in the final analysis.

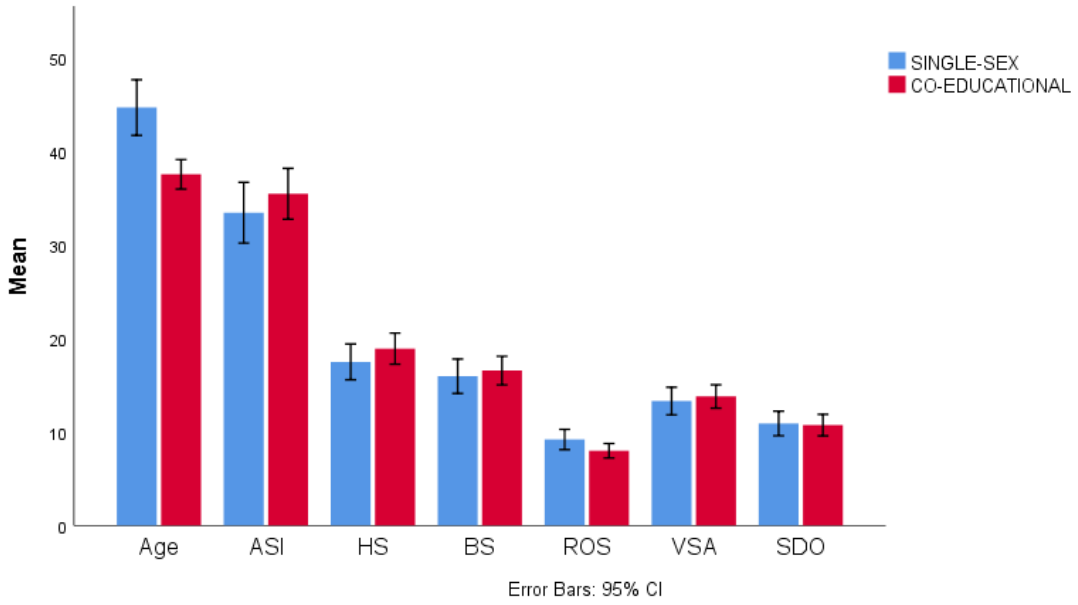
**Table 2**

*Descriptive statistics for all continuous variables (N=213)*

| | Mean (95% Confidence Intervals) | Std. Error Mean | Median | SD | Range |
|---|---|---|---|---|---|
| Age | 40.14 (38.61-41.67) | .78 | 38 | 11.35 | 21-71 |
| Ambivalent Sexism | 1.58 (1.48-1.67) | .05 | 1.50 | .70 | .32-3.50 |
| Hostile Sexism | 1.67 (1.56-1.79) | .06 | 1.64 | .85 | .18-4.55 |
| Benevolent Sexism | 1.49 (1.38-1.59) | .05 | 1.55 | .79 | .00-4.55 |
| Religiosity | 8.42 (7.79-9.06) | .32 | 6 | 4.68 | 5-25 |
| Authoritarianism | 13.62 (12.67-14.58) | .48 | 13 | 7.07 | 0-40 |
| Social Dominance | 10.80 (9.93-11.67) | .44 | 11 | 6.43 | 4-40 |

**Figure 1**

*Comparative means of all continuous variables for single-sex and co-educational groups (N=213)*




Note: ASI, HS, and BS measures have not been averaged above for visual clarity

To examine all three hypotheses, hierarchical multiple regression analyses were conducted. As such, the *p* value was set at .017 using the Bonferroni correction (.05/3) to reduce the chances of obtaining a Type I error.

**Hypothesis 1**

To determine whether schooling group added predictive utility to a model of ambivalent sexism that already included age, gender, religiosity, authoritarianism, and social dominance orientation, hierarchical multiple regression analysis was conducted. Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity,

and homoscedasticity. Inspection of the scatterplot identified one outlier with a standardized residual of greater than 3.3 however this score was deemed to be a valid response and within the possible score range and so was included in analysis. Correlations between the predictor variables and the criterion variable were examined and are outlined in Table 3. Four of the six predictor variables were significantly correlated with the criterion variable - those of gender ($r$ = -.18, $p$ = .005), religiosity ($r$ = .16, $p$ = .009), authoritarianism ($r$ = .46, $p$ < .001), and social dominance orientation ($r$ = .41, $p$ < .001). The correlations amongst the predictor variables were also examined with $r$ values ranging from .01 to .46, thus indicating that the assumption of multicollinearity was not violated, and the data was suitable for regression analysis.

**Table 3**

*Correlations between all continuous variables*

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Ambivalent Sexism | 1 | | | | | | |
| 2. Age | -.09 | 1 | | | | | |
| 3. Gender | -.18** | .14 | 1 | | | | |
| 4. Religiosity | .16** | .16* | .29*** | 1 | | | |
| 5. Authoritarianism | .46*** | .02 | .15* | .28*** | 1 | | |
| 6. Social Dominance Orientation | .41*** | .01 | -.18** | .13* | .34*** | 1 | |
| 7. Schooling | .06 | -.30*** | -.12* | -.12* | .03 | -.01 | 1 |

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Hierarchical multiple regression was used to assess the ability of schooling type (single-sex vs co-educational) to predict levels of ambivalent sexism, after controlling for the influence of age, gender, religiosity, authoritarianism, and social dominance orientation. Age and gender were entered at Step 1, explaining 4% of the variance in sexism scores, $F$ (2, 210) = 3.81, $p$

=.024 however this was not statistically significant given the adjusted *p* value. After the entry of religiosity, authoritarianism, and social dominance orientation at Step 2 the total variance explained by the model as a whole was 34%, $F$ (5, 207) = 20.87, $p < .001$. Schooling type was entered in Step 3 and did not account for any variation in sexism scores, after controlling for age, gender, religiosity, authoritarianism, and social dominance orientation (*R* squared change < .001). In the final model only three control measures were statistically significant, authoritarianism recorded a higher beta value of .39 ($p < .001$) than did social dominance orientation (*beta* = .24, $p < .001$) and gender (*beta* = -.21, $p = .001$) (see Table 4 for full details).

**Table 4**

*Hierarchical regression model predicting ambivalent sexism levels*

| | $R^2$ | Adj. $R^2$ | β | B | SE | CI 95% (B) |
|---|---|---|---|---|---|---|
| **Step 1** | .035 | .026 | | | | |
| Age | | | -.066 | -.004 | .004 | -.012 / .004 |
| Gender | | | -.166* | -.234 | .096 | -.423 / -.044 |
| **Step 2** | .335 | .319 | | | | |
| Age | | | -.086 | -.005 | .004 | -.012 / .002 |
| Gender | | | -.207** | -.290 | .087 | -.462 / -.119 |
| Religiosity | | | .096 | .014 | .009 | -.004 / .033 |
| Authoritarianism | | | .387*** | .038 | .006 | .026 / .051 |
| Social Dominance Orientation | | | .234*** | .026 | .007 | .012 / .039 |
| **Step 3** | .335 | .316 | | | | |
| Age | | | -.081 | -.005 | .004 | -.012 / .002 |
| Gender | | | -.205** | -.289 | .087 | -.461 / -.116 |
| Religiosity | | | .098 | .015 | .009 | -.004 / .033 |
| Authoritarianism | | | .386*** | .038 | .006 | .026 / .051 |
| Social Dominance Orientation | | | .235*** | .026 | .007 | .012 / .039 |
| Schooling | | | .016 | .024 | .088 | -.149 / .197 |

Note. $R^2$ = R-squared; Adj $R^2$ = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 213; Statistical significance: *p < .017; **p < .003; ***p < .0003.

**Hypothesis 2**

To determine whether schooling group added predictive utility to a model of hostile sexism that already included age, gender, religiosity, authoritarianism, and social dominance orientation, a hierarchical multiple regression analysis was conducted. Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity, and homoscedasticity. Inspection of the scatterplot identified one outlier with a standardized residual of greater than 3.3 however this score was deemed to be a valid response and within the possible score range and so was included in analysis. Correlations between the predictor variables and the criterion variable were examined and are outlined in Table 5. Four of the six predictor variables were significantly correlated with the criterion variable - those of gender ($r$ = -.17, $p$ = .008), religiosity ($r$ = .12, $p$ = .037), authoritarianism ($r$ = .48, $p$ < .001), and social dominance orientation ($r$ = .45, $p$ < .001). The correlations amongst the predictor variables were also examined with $r$ values ranging from .01 to .48, thus indicating that the assumption of multicollinearity was not violated, and the data was suitable for regression analysis.

**Table 5**

*Correlations between all continuous variables*

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Hostile Sexism | 1 | | | | | | |
| 2. Age | -.05 | 1 | | | | | |
| 3. Gender | -.17** | .14* | 1 | | | | |
| 4. Religiosity | .12* | .16* | .29*** | 1 | | | |
| 5. Authoritarianism | .48*** | .02 | .15* | .28*** | 1 | | |
| 6. Social Dominance Orientation | .45*** | .01 | -.18** | .13* | .34*** | 1 | |
| 7. Schooling | .07 | -.30*** | -.12* | -.12* | .03 | -.01 | 1 |

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Hierarchical multiple regression was used to assess the ability of schooling type (single-sex vs co-educational) to predict levels of hostile sexism, after controlling for the influence of age,

gender, religiosity, authoritarianism, and social dominance orientation. Age and gender were entered at Step 1, explaining 3% of the variance in sexism scores, $F$ (2, 210) = 3.02, $p$ = .051. After the entry of religiosity, authoritarianism, and social dominance orientation at Step 2 the total variance explained by the model as a whole was 35%, $F$ (5, 207) = 34.79, $p$ < .001. Schooling type was entered in Step 3 and did not account for any variation in sexism scores, after controlling for age, gender, religiosity, authoritarianism, and social dominance orientation (*R* squared change = .001). In the final model only three control measures were statistically significant, authoritarianism recorded a higher beta of .40 ($p$ < .001) than did social dominance orientation (*beta* = .29, $p$ < .001) and gender (*beta* = -.17, $p$ = .005) (see Table 6 for full details).

**Table 6**

*Hierarchical regression model predicting hostile sexism levels*

| | $R^2$ | Adj. $R^2$ | β | B | SE | CI 95% (B) |
|---|---|---|---|---|---|---|
| **Step 1** | .028 | .019 | | | | |
| Age | | | -.027 | -.002 | .005 | -.012 / .008 |
| Gender | | | -.161° | -.275 | .117 | -.505 / -.044 |
| **Step 2** | .354 | .338 | | | | |
| Age | | | -.041 | -.003 | .004 | -.011 / .005 |
| Gender | | | -.177* | -.301 | .104 | -.506 / -.096 |
| Religiosity | | | .032 | .006 | .011 | -.016 / .028 |
| Authoritarianism | | | .399*** | .048 | .007 | .033 / .063 |
| Social Dominance Orientation | | | .283*** | .037 | .008 | .021 / .053 |
| **Step 3** | .355 | .336 | | | | |
| Age | | | -.030 | -.002 | .004 | -.011 / .006 |
| Gender | | | -.174* | -.296 | .104 | -.502 / -.091 |
| Religiosity | | | .035 | .006 | .011 | -.016 / .028 |
| Authoritarianism | | | .396*** | .048 | .008 | .033 / .062 |
| Social Dominance Orientation | | | .285*** | .038 | .008 | .022 / .054 |
| Schooling | | | .038 | .067 | .105 | -.139 / .273 |

Note. $R^2$ = R-squared; Adj $R^2$ = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 213; Statistical significance: °p < .05 *p < .017; **p < .003; ***p < .0003.

## Hypothesis 3

To determine whether schooling group added predictive utility to a model of benevolent sexism that already included age, gender, religiosity, authoritarianism, and social dominance orientation, a hierarchical multiple regression analysis was conducted. Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity, and homoscedasticity. Inspection of the scatterplot identified one outlier with a standardized residual of greater than 3.3 however this score was deemed to be a valid response and within the possible score range and so was included in analysis. Correlations between the predictor variables and the criterion variable were examined and are outlined in Table 7. Four of the six

predictor variables were significantly correlated with the criterion variable - those of gender ($r$ = -.13, $p$ = .025), religiosity ($r$ = .16, $p$ = .012), authoritarianism ($r$ = .31, $p$ < .001), and social dominance orientation ($r$ = .25, $p$ < .001). The correlations amongst the predictor variables were also examined with $r$ values ranging from .01 to .34, thus indicating that the assumption of multicollinearity was not violated, and the data was suitable for regression analysis.

**Table 7**

*Correlations between all continuous variables*

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Benevolent Sexism | 1 | | | | | | |
| 2. Age | -.11 | 1 | | | | | |
| 3. Gender | -.13* | .14* | 1 | | | | |
| 4. Religiosity | .16* | .16* | .29*** | 1 | | | |
| 5. Authoritarianism | .31*** | .02 | .15* | .28*** | 1 | | |
| 6. Social Dominance Orientation | .25*** | .01 | -.18** | .13* | .34*** | 1 | |
| 7. Schooling | .03 | -.30*** | -.12* | -.12* | .03 | -.01 | 1 |

Note. Statistical significance: *p < .05; **p < .01; ***p < .001.

Hierarchical multiple regression was used to assess the ability of schooling type (single-sex vs co-educational) to predict levels of benevolent sexism, after controlling for the influence of age, gender, religiosity, authoritarianism, and social dominance orientation. Age and gender were entered at Step 1, explaining 3% of the variance in benevolent sexism scores, $F$ (2, 210) = 2.78, $p$ = .065. After the entry of religiosity, authoritarianism, and social dominance orientation at Step 2 the total variance explained by the model as a whole was 16%, $F$ (5, 207) = 34.79, $p$ < .001. Schooling type was entered in Step 3 and did not account for any variation in sexism scores, after controlling for age, gender, religiosity, authoritarianism, and social dominance orientation ($R$ squared change < .001). In the final model only two control

measures were statistically significant, authoritarianism recorded a higher beta of .26 ($p <$ .001) than that of gender (*beta* = -.11, $p$ = .011) (see Table 8 for full details).

**Table 8**

*Hierarchical regression model predicting benevolent sexism levels*

| | $R^2$ | Adj. $R^2$ | β | B | SE | CI 95% (B) |
|---|---|---|---|---|---|---|
| **Step 1** | .026 | .016 | | | | |
| Age | | | -.088 | -.006 | .005 | -.016 / .003 |
| Gender | | | -.122 | -.193 | .109 | -.407 / .021 |
| **Step 2** | .164 | .144 | | | | |
| Age | | | -.109 | -.008 | .004 | -.016 / .001 |
| Gender | | | -.177* | -.280 | .109 | -.495 / -.064 |
| Religiosity | | | .137 | .023 | .012 | .000 / .046 |
| Authoritarianism | | | .260** | .029 | .008 | .013 / .044 |
| Social Dominance Orientation | | | .112 | .014 | .009 | -.003 / .031 |
| **Step 3** | .164 | .140 | | | | |
| Age | | | -.112 | -.008 | .005 | -.017 / .001 |
| Gender | | | -.178* | -.281 | .110 | -.498 / -.064 |
| Religiosity | | | .136 | .023 | .012 | .000 / .046 |
| Authoritarianism | | | .261** | .029 | .008 | .013 / .045 |
| Social Dominance Orientation | | | .111 | .014 | .009 | -.003 / .031 |
| Schooling | | | -.012 | -.019 | .110 | -.237 / .198 |

Note. $R^2$ = R-squared; Adj $R^2$ = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 213; Statistical significance: *p < .017; **p < .003; ***p < .0003.

## Discussion

Sexism has been shown to be prevalent cross-culturally, and drawing from Developmental Intergroup Theory, practices such as gender segregation may influence this. While there are a number of variables that may influence levels of sexism, this study sought to control for five such variables that the literature has identified as being associated with sexism - those of gender, age, religiosity, authoritarianism, and social dominance orientation. The first study aimed to determine whether schooling type added predictive utility to a model of *ambivalent* sexism when controlling for such variables. The final model accounted for 34% of the variance in sexism levels, however schooling was not associated with any of these changes. Gender, authoritarianism, and social dominance orientation were the only variables which were significantly associated with a change in ambivalent sexism levels in the final model and as such the first hypothesis was not supported.

The second study aimed to determine whether schooling type added predictive utility to a model of *hostile* sexism when controlling for gender, age, religiosity, authoritarianism, and social dominance orientation. The final model accounted for 35% of the variance in sexism levels, however schooling again did not account for any of these changes. Gender, authoritarianism, and social dominance orientation were the only variables which were significantly associated with changes in hostile sexism levels in the final model. The second hypothesis that schooling type would predict a change in hostile sexism levels was not supported by the data.

The third study aimed to determine whether schooling type added predictive utility to a model of *benevolent* sexism when controlling for gender, age, religiosity, authoritarianism, and social dominance orientation. The final model accounted for 16% of the variance in

sexism levels, however schooling again did not account for any of these changes. Gender and authoritarianism were the only variables which were significantly associated with a change in benevolent sexism levels in the final model. The third hypothesis that schooling type would predict a change in levels of benevolent sexism was not supported.

The first two studies created models of ambivalent and hostile sexism in which gender, authoritarianism and social dominance orientation were significant predictors. This is consistent with previous literature; this sample supported the research that males hold more ambivalent and hostile sexist beliefs than women (negative results for gender in regression analyses signify males as they were coded as 0). Social dominance orientation was also associated with higher ambivalent sexism levels, and there was a larger effect seen for its association with hostile sexism (.29 compared to .24). This again supports previous literature that social dominance orientation (i.e. the desire to dominate inferior groups) is predictive of hostile (and ambivalent) sexism. Authoritarianism was the strongest predictor in each model of ambivalent and hostile sexism (.39 and .40 respectively). Previous research has purported that authoritarianism results in individuals wishing to preserve traditional roles and values and viewing those that stray from this with negativity. As patriarchal societies tend to be the norm scoring higher in this may indicate a desire to maintain this status quo. While authoritarianism has been demonstrated to be predictive of ambivalent sexism in previous studies it is generally associated with benevolent rather than hostile sexism. It bears mention again that this measure showed a questionable Cronbach alpha coefficient for the current sample and so caution must be applied when contemplating these results.

In previous research age has been a factor associated with sexism, but the direction has not been clear, some studies showed sexism declining with age and others demonstrated a u-shaped trajectory over the lifespan. In this sample, age was not significantly associated with

either ambivalent or hostile sexism in the final model. Religiosity has also been seen to have a predictive role in sexism levels, however this again was not supported by the data. Religiosity was not significantly associated with ambivalent or hostile sexism levels at any step of the model. One reason for this may be the apparent homogeneity of answers from the sample, with the majority of participants scoring similarly (low) in religiosity.

The third study created a model of benevolent sexism in which only gender and authoritarianism were significant predictors. Again, gender being a significant predictor of ambivalent sexism is supportive of previous literature as stated earlier. Authoritarianism was again the most predictive of benevolent sexism levels which supports the previous research. Benevolent sexism is associated with "positive" stereotypes of women (caring, gentle, warm) and as such those that endorse the preservation of traditional roles (housewife, caregiver) would score high in authoritarianism. Of the three studies benevolent sexism was the only measure that was not predicted by social dominance orientation. This also supports previous research as SDO attempts to subjugate women whereas benevolent sexism is seen as "putting them on a pedestal". SDO is typically associated with hostile sexism which was true for this sample.

Developmental Intergroup Theory has suggested that gender segregation may increase sexism levels through an ingroup/outgroup mentality as well as other processes discussed earlier. According to DIT single-sex schooling should increase gender-stereotyping which in turn promotes prejudice. While gender segregation may increase gender stereotyping and in turn sexism, this effect appears to not be maintained in later life based on this study. In this study, both single-sex and co-educational groups scored quite similarly on ambivalent sexism levels, and their two sub-dimensions as has been highlighted in Figure 1. Studies such as this lend support to previous research that segregated schooling does not influence sexism levels

in later life to a significantly greater degree than their co-educated counterparts. One reason for these unexpected findings may be that contact with the opposite gender throughout schooling, in the form of siblings or friends, or increased contact with the opposite gender once having left school, has influenced these results. While this study does not directly support DIT by the manifestation of sexist attitudes and beliefs in later life, support may have been apparent if data were collected on students within these schools. As such, this study demonstrates that if there are greater negative effects of segregation in school (i.e. sexism), it is not maintained in later life.

**Practical Implications**

As this present study does not support the hypotheses that schooling type predicts changes in sexist attitudes and beliefs in later life, perhaps government funding may be better spent on increasing awareness in schools of gender stereotyping and highlighting the impacts that sexism can have on an individual and on society as a whole. Policies aimed at promoting positive interactions between genders in co-educational schools may be the more effective way to reduce prejudicial attitudes, and in turn reduce sexist attitudes and beliefs, than the separation of genders, as no significant difference was observed within this sample. Academic and social outcomes may be enhanced by such policies (National School Climate Council, 2015). Teachers can play an important role in facilitating positive intergroup interactions and in previous research for students that felt there was a positive climate for inclusion of all genders reported feeling happier in school (Andrews et al., 2016; Field, Martin, Andrews, & England, 2017). Fabes, Martin, Hanish, and DeLay (2018) demonstrated that interventions promoting intergroup contact were successful and increased children's play time with other genders.

Modifications could also be made to classrooms and seating arrangements which could affect how children respond and interact with one another (Gest & Rodkin, 2011; Luckner & Pianta, 2011) as when gender is made salient in class, gender stereotyping increases (Hilliard and Liben, 2010). Training for teachers in this issue may also be beneficial when taking into account the literature, especially in transforming their own potentially essentialist beliefs (Fabes, Martin, Hanish, DeLay, 2018).

**Limitations and Future Research**

One of the strengths of the present study is that it attempts to expand upon previous research in a novel way. To the researcher's knowledge, previous studies have failed to examine if the effects of gender segregation in school result in long-term social effects (i.e. sexism) compared to co-educated individuals. As this study found no significant difference in sexism levels it suggests that any effects of gender segregation, as demonstrated in the literature, may be mitigated once individuals have left school. Another strength is the studies attempt to control for any known predictors of sexism that may have influenced results however there are still a number of limitations to be considered in the present study.

Firstly, as this is a cross-sectional design no causality can be inferred. This is not a major limitation in the current research as no statistically significant findings were evident, however longitudinal research in the future could more adequately address the research questions posed. This would be especially relevant considering the possibility of intergroup contact after school affecting the results in later life, if longitudinal research were to be implemented in a study such as this one may see fluctuations in sexism levels which could be important for highlighting whether segregation at a certain time is more predictive of sexist attitudes and beliefs (i.e. primary vs secondary school).

Secondly, this study used a self-report measure to determine sexism levels. As such, there is the possibility of a social desirability bias in effect, with individuals potentially marking themselves lower on questions of overt sexism either consciously or unconsciously. As such, future research may benefit from employing an implicit association measure to examine sexism levels as they may be more revealing of any unconscious biases.

Another limitation to this study is the lower number of single-sex respondents, specifically male single-sex respondents. The current sample consisted of 29 single-sex male respondents and 69 co-educated male respondents. As previous research has highlighted that males typically score higher in sexism levels than women, perhaps having a more balanced sample would have yielded different results.

## Conclusion

The present study found no significant predictive utility of schooling type to models of ambivalent, hostile, and benevolent sexism. Though research has demonstrated that single-sex schooling can result in increased gender-stereotyping and prejudice the results of this study indicate that, if originally present, this increased prejudice was not maintained over time. As no significant difference was found between schooling groups, policies aimed at promoting positive interactions between genders during school age may be the more effective way to reduce prejudicial attitudes than in funding segregated schools. While this study was a novel attempt to expand on previous research, future studies may benefit from using implicit association measures and longitudinal data to determine whether unconscious prejudice is observed or whether segregation at different ages is more influential to sexist attitudes and beliefs.

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# Appendix A

## Participation Information Sheet

You are being asked to take part in a research study investigating the relationship of gender segregation on sexist attitudes and beliefs in later life. Specifically, this study aims to determine if single-sex schooling is associated with higher levels of sexism in later life when compared to those that have attended a co-educated school or class. As there are many variables that can influence levels of sexism, this study aims to control for three such variables that have consistently correlated highly with sexist attitudes and beliefs: religiosity, authoritarianism, and social dominance orientation.

This research is being conducted by Suzanne McMahon, an undergraduate psychology student at the National College of Ireland, as a final year project for the completion of their BA (Hons) psychology degree. The method proposed for this research project has been approved in principle by the Departmental Ethics Committee which means the Committee does not have concerns about the procedure itself as detailed by the student.

## Specific Criteria for Participation:

This study requires ONLY participants that are over 18 years of age and have either attended both a single-sex primary and secondary class/school, or both a co-educated primary and secondary class/school. To clarify on the latter, eligibility to take part in this study is on the condition that you have been exclusively in a single-sex class for primary and secondary school or exclusively in a mixed class for both primary and secondary school.

In this study, you will be asked some brief demographic questions: age, gender and schooling type. This will then be followed by the Ambivalent Sexism Inventory, the Religious Orientation Scale – Adapted, the Very Short Authoritarianism Scale, and the Short Social Dominance Orientation Scale. The study takes approximately 10 minutes to complete and you may take as many breaks as you wish while completing it.

You may decide to stop being a part of the research study at any time without explanation and any data you have supplied up to that point will be automatically withdrawn. However, due to the nature of data collection via online survey and the fact that the data provided will be stored anonymously means that when the survey is completed and submitted an individual's specific file will be unidentifiable for withdrawal purposes (or for any other).

You have the right to omit or refuse to answer or respond to any question that is asked of you. You have the right to have your questions about the procedures answered. If you have any questions as a result of reading this information sheet, you may ask the researcher before the study begins on the contact information provided below. There are no known benefits or risks for you, and your participation in this study is voluntary.

The data collected will not contain any personal information about you except that of age, gender and schooling type. All data will be stored anonymously in an encrypted file on a password protected laptop, this will be in the sole possession of the author of the study. The data obtained will be used in the submission of a final year thesis and may be used in presentation at conferences or in publications. All data will be unidentifiable.

If you want to find out more information before beginning please contact me on x15019594@student.ncirl.ie, you may also contact if you are interested in the final outcome of the study. Further to this, you may also contact the project supervisor for any queries or concerns.

Project Supervisor: Dr. Mira Dobutowistch
Email: mira.dobutowistch@ncirl.ie

## Appendix B

### Consent Form

In agreeing to participate in this research I understand the following:

This research is being conducted by Suzanne McMahon, an undergraduate psychology student at the National College of Ireland.

The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

If I have any concerns about participation, I understand that I may refuse to participate or withdraw at any stage (other than after answers have been submitted).

I have been informed as to the general nature of the study and agree voluntarily to participate.

There are no known expected discomforts or risks associated with participation. All data from this study will be treated confidentially.

The data from all participants will be compiled, analysed and submitted in a report to the Psychology Department in the National College of Ireland. No participants data will be identified by name at any stage of the data collection, analysis, or in the final report.

At the conclusion of my participation, any questions or concerns I have will be fully addressed.

I may withdraw from this study at any time by not submitting answers, however due to data anonymity I will be unable to withdraw after final submission of survey answers as my data will be unidentifiable.

Required Question*

☐ I verify that I am over 18 years of age and voluntarily consent to take part in this study

## Appendix C

**Demographics**

Age

_____

Gender

◯ Female

◯ Male

◯ Other

Schooling ** Please Read Carefully**

◯ Attended a SINGLE-SEX Primary and Secondary Class/School Only

◯ Attended a CO-EDUCATIONAL/MIXED Primary and Secondary Class/School Only

◯ Other

## Appendix D

### Ambivalent Sexism Inventory

Below is a series of statements concerning men and women and their relationships in contemporary society. Please indicate the degree to which you agree or disagree with each statement using the following scale: 0 = disagree strongly; 1 = disagree somewhat; 2 = disagree slightly; 3 = agree slightly; 4 = agree somewhat; 5 = agree strongly.

1. No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman.
2. Many women are actually seeking special favours, such as hiring policies that favour them over men, under the guise of asking for "equality".
3. In a disaster, women ought not necessarily to be rescued before men.
4. Most women interpret innocent remarks or acts as being sexist.
5. Women are too easily offended.
6. People are often truly happy in life without being romantically involved with a member of the other sex.
7. Feminists are not seeking for women to have more power than men.
8. Many women have a quality of purity that few men possess.
9. Women should be cherished and protected by men.
10. Most women fail to appreciate fully all that men do for them.
11. Women seek to gain power by getting control over men.
12. Every man ought to have a woman whom he adores.
13. Men are complete without women.
14. Women exaggerate problems they have at work.

15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash.
16. When women lose to men in a fair competition, they typically complain about being discriminated against.
17. A good woman should be set on a pedestal by her man.
18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances.
19. Women, compared to men, tend to have a superior moral sensibility.
20. Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives.
21. Feminists are making entirely reasonable demands of men.
22. Women as compared to men, tend to have a more refined sense of culture and good taste.

## Appendix E

### Religious Orientation Scale – Adapted

Please indicate the degree to which you agree or disagree with each statement using the following scale: 1 = strongly disagree to 5 = strongly agree.

1. I believe in God/absolute being.
2. I attend religious service regularly.
3. I pray on a regular basis.
4. I read religious texts regularly.
5. I try hard to carry my religion over into all my other dealings in life.

## Appendix F

### Very Short Authoritarianism Scale

Please indicate the degree to which you agree or disagree with each statement using the following scale: 0 = very strongly disagree; 1 = strongly disagree; 2 = somewhat disagree; 3 = slightly disagree; 4 = neutral; 5 = slightly agree; 6 = somewhat agree; 7 = strongly agree; 8 = very strongly agree.

1. It's great that many young people today are prepared to defy authority.
2. What our country needs most is discipline, with everyone following our leaders in unity.
3. God's laws about abortion, pornography, and marriage must be strictly followed before it is too late.
4. There is nothing wrong with premarital sexual intercourse.
5. Our society does NOT need tougher government and stricter laws.
6. The facts on crime and the recent public disorders show we have to crack down harder on troublemakers, if we are going preserve law and order.

## Appendix G

### Short Social Dominance Orientation Scale

There are many kinds of groups in the world: men and women, ethnic and religious groups, nationalities, political factions.

How much do you support or oppose the ideas about groups in general? Please indicate the degree to which you agree or disagree with each statement from 1 = Extremely Oppose to 10 = Extremely Favour.

1. In setting priorities, we must consider all groups.
2. We should not push for group equality.
3. Group equality should be our ideal.
4. Superior groups should dominate inferior groups.

## Appendix H

**Debriefing Form**

**Please make sure to click submit at the bottom of this page if you wish for your responses to be included in this study**

Thank you for participating as a research participant in the present study concerning gender segregation and sexist attitudes and beliefs. The present study aims to determine if higher levels of sexist attitudes and beliefs are reported by those that attended single-sex schooling when compared to those that have attended co-educational schools. This study also controlled for variables that have been demonstrated to influence levels of sexism (i.e.) religiosity, authoritarianism, and social dominance orientation.

Again, I thank you for your participation in this study and greatly appreciate your contribution. If you know of any friends, family or acquaintances that meet the criteria and are eligible to participate in this study then please feel free to pass along the link.

If you have any questions regarding this study, please contact the researcher at x15019594@student.ncirl.ie.

In the event that you feel psychologically distressed by participation in this study or were triggered by the sensitive topics covered in the survey questions, we encourage you to call any of the following numbers:

Women's Aid (Domestic Violence): 1800 341 900

AMEN (Domestic Violence): 0469 023 718

LGBT Helpline: 1890 929 539

Samaritans: 116 123

Aware: 1800 804 848

HSE National Counselling Service (Clerical Abuse): 180 742 800

## Appendix I

*Comparative means of all continuous variables for single-sex and co-educational groups (N=213)*

| | Mean (95% Confidence Intervals) | Std. Error Mean | Median | SD | Range |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Single-sex | 44.40 (41.72-47.68) | 1.50 | 45 | 13.12 | 23-71 |
| Co-educational | 37.56 (35.98-39.140 | .80 | 36 | 9.31 | 21-65 |
| **Ambivalent Sexism** | | | | | |
| Single-sex | 1.52 (1.37-1.67) | .07 | 1.50 | .65 | .45-2.82 |
| Co-educational | 1.61 (1.49-1.74) | .06 | 1.50 | .73 | .32-3.50 |
| **Hostile Sexism** | | | | | |
| Single-sex | 1.59 (1.42-1.76) | .09 | 1.55 | .77 | .45-3.73 |
| Co-educational | 1.72 (1.57-1.87) | .08 | 1.64 | .89 | .18-4.55 |
| **Benevolent Sexism** | | | | | |
| Single-sex | 1.45 (1.28-1.62) | .08 | 1.45 | .74 | .18-3.00 |
| Co-educational | 1.51 (1.37-1.64) | .07 | 1.55 | .82 | 0-4.55 |
| **Religiosity** | | | | | |
| Single-sex | 9.19 (8.11-10.28) | .54 | 7 | 4.77 | 5-23 |
| Co-educational | 7.99 (7.21-8.76) | .39 | 6 | 4.59 | 5-25 |
| **Authoritarianism** | | | | | |
| Single-sex | 13.31 (11.84-14.79) | .74 | 14 | 6.50 | 0-31 |
| Co-educational | 13.80 (12.55-15.05) | .63 | 13 | 7.38 | 0-40 |
| **Social Dominance Orientation** | | | | | |
| Single-sex | 10.91 (9.60-12.22) | .66 | 11 | 5.78 | 4-28 |
| Co-educational | 10.74 (9.58-11.89) | .58 | 9 | 6.79 | 4-40 |