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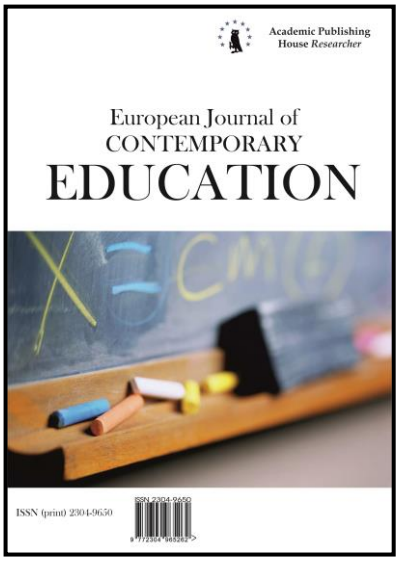


# Single-Sex School Graduates in the Post-School Mixed-Sex Environment: A Study in Kazakhstan

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**Abstract**

The main idea behind single-sex schooling is to reduce the interaction with the opposite sex for better academic, social and emotional development in a belief that this safe environment will eliminate destruction arrived created from opposite-sex classmates. In fact, single-sex schooling results in a decrease in the likelihood of attending the party and having romantic relationships at adolescence (Cardona, Kaufmann, 2017). But, does this perpetuate better outcomes in the short and long run for participants of this schooling type is an abiding interest in many studies? Debates over the pros and cons of single-sex schooling are widespread and some papers are taking an ideological stand, and holding upon polarizing views (Gordillo, 2017). Gordillo (2017) analyzed some meta-analysis studies and found that these papers did not include valuable research papers with opposing findings which give doubtful conclusions.

Most of the existing studies evaluated the academic attainment of single-sex school students and comparative analyses are done to cross-analyze with coeducational students' achievement. This paper, on another hand, focuses on how single-sex school graduates find it challenging their relationship with the opposite sex in mixed-sex spaces in the post-school period. This study particularly focused upon challenges in relationships with individuals of the opposite sex at university, work-space and with the spouse. The study is taken place at Kazakhstan's educational foundations which run both single-sex and coeducational schools. Findings reveal graduates of single-sex schools have not faced significant challenges in relationships with the opposite sex at university, work-space, and spouse compared to coeducational school graduates.

**Keywords:** single-sex education, relationship with the opposite sex, family formation.

## 1. Introduction

One of the reasons for the flourishing of single-sex schools and classes especially in the USA is that the scientific discovery of that boys and girls have different brain development and have

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different ways of learning traits. In 2008–2009, there were more than 1,000 coeducational public schools in the USA that had implemented single-sex classes in their offerings and more than 100 public single-sex schools for boys and girls (Klein, 2012). One of the pioneers of this doctrine is Leonard Sax – a physician and psychologist who founded the National Association for Single-Sex Public Education and runs teacher training sessions nationally (Sax, 2005). Another pioneer is Michael Gurian, an author of a book titled "The Boys and Girls Learn Differently: Action Guide for Teachers" who established the Gurian Institute that trains teachers on gender-based pedagogy (Gurian, 2003). Both of these scientists advocate a single-sex form of education as a model to pursue. However, the Association for Psychological Sciences with their six cognitive scientists counter-argued claims set by Sax and Gurian and conclude that there is no difference in brain functioning and development, and further argued single-sex schooling is not necessary (Halpern, 2007).

It is interesting to note that there are single-sex kindergartens in the USA which were established in the popularity of sex segregation in education. Diehm (2009) took up a doctoral study to evaluate the effectiveness of a single-sex form of education at the kindergarten level, with finding as weak effectiveness of segregated education. Many studies analyzed the academic achievement of students at the primary school level (Malik, Mirza, 2014; Pilson, 2013, O'Neill, 2011; Hopkins, 2001) mostly with findings of no difference in achievements. There are several studies to compare achievements at the secondary school level: Lee, Niederle & Kang (2014) with no difference in findings, Houtte (2004) pro coeducational findings, and Thom (2006) with pro-single-sex education findings. Some studies focused on how single-sex schooling affects performance at a university: Kocak (2019b) with mixed findings and Park, Behrman & Choi (2012) with pro-single-sex education findings.

Besides focusing on academic achievements at different educational levels, some studies focused upon comparing subject-wise achievement, especially in mathematics and science (Prendergast, O'Donoghue, 2014; Sikora, 2013; Doris et al., 2012). It is believed that single-sex education has a positive effect on minority and economically disadvantaged children, and many single-sex schools and classes were established in the USA to improve the academic attainment of these social groups (Green, 2015; Dwarte, 2014; Hubbard, Datnow 2005). Studies were also conducted on personality traits like self-esteem and self-concept (Dhar, 2016; O'Neill, Guerin, 2010). For a long-term effect of single-sex schooling upon family formation and work-space achievement researchers generally used available secondary longitudinal research data (Cardona, Kaufmann, 2017; Sullivan et al., 2010, 2011, 2012; Woodward et al., 1999).

There is a vast number of studies performing comparative analyses between single-sex and coeducational students' performance and personality traits. To be able to understand overall pro-single-sex or coeducational result there are meta-analyses which have collected all related studies, after shortlisting through filtering criteria remained studies were classified into pro-single-sex or not (Mael et al., 2005). In the literature review, the focus will be given to meta-analyses studies and researches conducted to analyze the long-term effects of single-sex schooling.

**Objectives of the Study:**

1. To study the effect of single-sex schooling on the level of challenges faced in relationship with the opposite sex in mixed-sex post-school environments. Particularly with groupmates at university, colleagues at the workplace and spouse.
2. To develop policy analyses for educational foundations that run single-sex schools for gifted children in Kazakhstan.

**Research Questions of the Study:**

1. Do graduates of single-sex schools find it equally challenging in relationships with opposite-sex individuals; groupmates at university, colleagues at the workplace and spouse?
2. Do male graduates of single-sex schools find it equally challenging in relationships with opposite-sex individuals; groupmates at university, colleagues at the workplace and spouse?
3. Do female graduates of single-sex schools find it equally challenging in relationships with opposite-sex individuals; groupmates at university, colleagues at the workplace and spouse?

**Hypotheses:**

H1: Single-sex school graduates face more challenge to study along with students of opposite-sex in mixed-sex university

H2: Single-sex school graduates face more challenges to work along with personnel of opposite-sex in mixed-sex work-space.

H3: Single-sex school graduates face more challenges to adapt to the gender psychology of spouses.

## 2. Literature Review

In 2005, a group of researchers conducted a resourceful systematic study for the US Department of Education on the effectiveness of single-sex education. The study was held by authors Mael, Alonso, Gibson, Rogers, and Smith from the American Institute of Research. The study aimed to analyze if single-sex education had a positive effect on academic accomplishments, socioemotional development, gender inequity and school climate or culture that may have an impact on performance. This study was necessary to know the outcome of single-sex schooling from a summary of existing research in a time when demand for single-sex schools and single-sex classrooms were growing in the public domain in the USA.

As a part of the systematic study, the 2,221 existing studies were located from electronic databases through exhaustive search. The studies had to be carried out in Westernized nation and the language of the paper had to be in English for proper coding. For final review the initially collected studies had to go through three phases of shortlisting under a certain set of criteria and most importantly studies opted to be empirical quantitative studies with proper statistical tests applied, hence few good qualitative papers also were included in the final list. Just one criterion which is the study to be experiential was dropped aside.

"*According to the guidelines of the WWC (What Works Clearinghouse), all studies other than randomized controlled trials, quasi experimental designs (QED) with matching, or regression discontinuity designs would be excluded prior to Phase III. Under the WWC criteria for inclusion, virtually all single-sex studies would have been eliminated from the review process because of the lack of experimental research on this topic. Therefore, for this review, a conscious decision was made to relax these standards and include all correlational studies that employed statistical controls.*" (Mael et al., 2005, p. xi).

At the shortlisting process, 40 studies passed through all requirements and remained for review, from 40 studies 112 findings have been derived as some papers took up research from multiple angles. In the last stage, the studies were scrutinized under the criteria of sample characteristics, psychometric properties, internal validity, effect, and bias. The shortlisted studies were brought under one of four categories: Supporting Single-sex, Supporting Coeducation, Null, and Mixed.

"*If a study's findings all supported SS (Single-sex) schooling for a given outcome variable, it was coded as "Pro SS". If the study's findings all supported coeducational for a given outcome variable, it would be coded "Pro CE (Coeducation)". A study was coded "Null" if for all findings regarding that outcome variable, there were no differences between the SS and CE schools. A study was coded "Mixed" if the study had significant findings in opposite directions for different subgroups on the same variable.*" (Mael et al., 2005, p. xii).

For Concurrent Academic Accomplishment outcomes, the 43 findings were derived, 15 (35 %) findings revealed Pro Single-sex output, 1 (2 %) Pro Coeducation, 23 (53 %) were Null and 4 (10 %) with Mixed result. The single-sex schools had shown higher accomplishment in terms of Concurrent Academic Accomplishment which covered areas of All-Subject, Mathematics, Science, Verbal/English, Social Studies Achievement Test Scores and Total Grade. In terms of Long-Term Academic Accomplishment outcomes 4 findings were shortlisted, 1 finding (25 %) was Pro Single-sex, 0 (0 % ) Pro Coeducation, 3 (75 %) Null and 0 (0 %) with Mixed result. Long-Term Academic Accomplishment covered achievements in Postsecondary Test Scores, College Graduation, and Graduate School Attendance. Just 4 shortlisted studies in this angle reveal very few studies have been carried out in post-school (university) academic performance.

The systematic study also took place on Concurrent Adaptation and Socioemotional Development outcomes which covered field of studies as Self-concept, Locus of Control, School Track/Subject Preference, Educational Aspirations, Career Aspirations, Delinquency, Attitudes

Toward School, Time Spent per Week on Homework and Attitudes Toward Working Women. Out of 49 findings, 22 (45 %) was Pro Single-sex, 5 (10 %) Pro Coeducation, 19 (39 %) Null and 3 (6 %) with Mixed results. The findings reveal the Pro Single-sex stance in these outputs.

The next set of outcomes was under Long-term Adaptation and Socioemotional Development heading which embarrassed achievements in School Completion, Postsecondary Success, Postsecondary Unemployment, Eating Disorders, Choice of College Major, Sex-Role Stereotyping, Political Involvement and Percent Married to First Spouse. The total 10 findings distributed as 5 (50 %) Pro Single-sex, 2 (20 %) Pro Coeducation, 3 (30 %) Null and 0(0 %) with Mixed category. In this sphere also single-sex students stood out slightly better than coeducational students.

Perceived School Culture heading combined Climate for Learning, Opportunities for Leadership Roles and School Environment outputs. This set of outputs had 4 findings with 2 (50 %) Pro Single-sex, 0 (0 %) Pro Coeducation, 2 (50 %) Null and 0 (0 %) Mixed results. The last heading Subjective Satisfaction combined two outputs namely Satisfaction with School Environment and College Satisfaction. This outputs had 2 findings 1 (50 %) Pro Single-sex, 1 (50 %) Pro Coeducation, 0 (0 %) Null and 0 (0 %) Mixed. The last two sets of outputs also reveal a slight higher Pro Single-sex school position.

In total, there are 32 outputs with 112 findings, 46 (41 %) Pro Single-sex, 9 (8 %) Pro Coeducation, 50 (45 %) Null and 7 (6 %) with Mixed findings. In general terms, single-sex school students outperformed coeducational students in this systematic review study. It should be noted that just one output Percent Married to First Spouse with one finding (study) covered relationship with opposite-sex in the post-school scenario. There is a dearth of study at this angle and this particular paper aims to bridge the gap in this area of study.

Mael et. al (2005) were interested to analyze studies carried on teenage pregnancy, college performance, differential treatment by teachers, parental satisfaction, bullying in schools, and teacher satisfaction; hence, there were too few papers in this end and these aspects were not covered. Authors also suggest studies to be carried out in the future on the effect of single-sex schooling in work-related long-term outcomes such as job performance, leadership performance, mixed-sex work team performance, performance and leadership in volunteer associations, job involvement, and organizational commitment.

Cardona and Kaufmann (2017) took up research about the effect of single-sex schooling on individuals' marriage and family outcomes and the study was based in the UK. Historically, the UK has a rich history of single-sex education and still, this educational type finds its place in the country despite quite a decrease over the past decades. Cardona and Kaufmann (2017) mention that at present in the UK, 5 % of girls and 2.7 % of boys are educated in this schooling type. Cardona and Kaufmanns (2017) in this study aimed to analyze if the limited interaction with the opposite sex during school years in single-sex schools has long-term effects, particularly family formation and its outcome.

Cardona and Kaufmann (2017) to answer the research questions took up the existing secondary data of the 1958 National Child Development Study (NCDS) conducted in the UK. 1958 NCDS is a long term multidisciplinary research which over the years researched children burn during the same one week of March in 1958. This longitudinal research aimed to project the population for better policymaking, thousands of studies have been conducted on availed data. Over a period of years, the cohort group was observed, interviewed and cognitive and non-cognitive tests were conducted to avail as much data as possible.

"*The data is extremely rich in terms of individual and family characteristics (among many others, family size and sibling composition, parents' education, occupation, interest in the education of their children, marital status, religion, ethnicity etc.), measures of children's cognitive and non-cognitive skills, information on children's health, early development and physical appearance (including height, weight and questions on the child's attractiveness answered by teachers).*" (Cardona, Kaufmann, 2017: 2)

The 27 % of the shortlisted cohort group consisting of 11,156 individuals went to single-sex schools at the age of 16, giving a quite good number for comparative analyses. This shortlisted number is from an initial total of 17,416, the decrease is due to the elimination of individuals from Scotland as there is a different education system and as well non-response appeared over the years. The single-sex schools tend to enroll higher-performing children or children of the higher socio-

economic class group. In fact, many studies conclude that individuals with academic and economic privilege have a better opportunity in family formation.

The main data for this study came from an interview conducted with the cohort group at the age of 42. Variables included information as "ever having been married or cohabiting", "the likelihood of being separated or divorced" and "the likelihood of having any children". The findings revealed for male single-sex schooling had a negative effect on "ever having been married or cohabiting". For female single-sex participants, there is no significant difference in the same variable with their counterparts from coeducational schools. In term of "the likelihood of being separated or divorced" the male coming from single-sex schooling have a negative result in this angle also. Again as the previous variable in this angle also there is no difference between females coming from two schooling types. And in the third variable "the likelihood of having any children" there is no difference between both male and female groups.

Alice Sullivan, Heather Joshi and Diana Leonard together drafted three research papers in 2010, 2011 and 2012 on the effects of single-sex schooling. In all three studies, the 1958 NCDS longitudinal data was used as done by Cardona and Kaufmann (2017). The focus of Cardona and Kaufmann's (2017) research was mainly marriage aspects and however, Sullivan, Joshi, and Leonard took up many dimensions of both short and long-term effects of single-sex schooling. The 1958 NCDS study did not include children were born in North Ireland. As it has been discussed previously, this study is also of significance as the sample group of 1958 can project the entire population, hence the data set has shortcoming from the angle of single-sex schools is meant for academically advanced children or these are private fee-paying institutions which are selective in nature. At the age of 16 among single-sex school goers, 78 % attended Private schools and 13 % at Comprehensive schools. Private schools are fee-paying schools or grant-based schools, and Comprehensive schools are schools for the neighborhood with general participation without any selective process. These studies lack in terms of "like with like" principles, hence these are among few quality pieces of research with comprehensive data on the long-term effects of single-sex schooling.

Sullivan, Joshi and Leonard, in a 2010 study, took up the effect of single-sex schooling on academic outputs at different ages. The conclusions are as follows (i) at the age of 16 in 1974 girls attending girls-only school showed significantly better results compared to girls from coeducational schools at O-level exam, there was no difference male students' achievement (ii) at the age of 18 in 1976 there was no significant difference between single-sex students and coeducation students' performance including both sexes at A-level exam (iii) at the of 33 in 1991 the 25 % men hailing from boys' schools, 11 % of coeducated men, 21 % of girls' school women and 7 % of coeducated women received degrees, the finding shows significant pro-single-sex education difference on gaining degree in adulthood, (iv) at the age of 42 in 2000 the cohort group was tested on basic reading and innumeracy skills, and the findings revealed the shortcoming is not due to single-sex education (v) at the age of 46 in 2004 the variable was on lifelong learning particularly any sort, of course, being taken in last 4 years, and the finding showed there is no association between course enrolment and schooling type.

Sullivan, Joshi, and Leonard, in 2011, studied the effect of single-sex schooling on labor market outcomes at the age of 42. According to analyzes for males, there is no effect of single-sex schooling on labor market success even though single-sex participants were of academic or socio-economic privilege. There is an advantage for women coming from single-sex schooling, they received a pay premium of about 5 % compared to coeducated women. Hence single-sex schooling does not have a significant effect on women to work in male-dominated jobs, there is no significant difference.

The last research conducted by Sullivan, Joshi and Leonard in 2012 is focused upon social and family outcomes, similar to Cardona and Kaufmann's study in 2017, and both of these studies used the same data. Sullivan, Joshi and Leonard in 2012 (ibis) conclude, as Cardona and Kaufmann's (2017) finding, that male single-sex school graduates are disadvantaged in divorce, and no difference in childbearing variables. However, surprisingly, in terms of getting married, these two group of authors differ on findings, Cardona and Kaufmann (2017) conclude negative finding for male single-sex school graduates but Sullivan, Joshi and Leonard (2012) results show no difference among single-sex male; this is due to applying two different statistical tools in identifying difference. In terms of other outcomes, there is no difference between women attended single-sex and coeducation on malaise (mental health) at the age of 42, hence there is a negative effect for men who attended all-boys selective schools. Another interesting variable is on the quality

of relationship with the spouse, both men and women coming from segregated education are more likely to express their relationship as extremely happy.

The last study for review is by Woodward, Fergusson and Horwood (1999) who have conducted research in New Zealand. The data used for analyzes is secondary longitudinal data of the Christchurch Health and Development Study. This multidisciplinary research is a collection of lifelong data of 1,265 children (635 males; 630 females) born in the Christchurch urban region over a four-month period during 1977. Similar to 1958 NCDS research this study also collected data on sample groups through various means over period years till age 18, particularly "parent interviews, teacher assessments, medical records, standardized tests and interviews with the children" (ibid, p. 5). The children who have done schooling in single-sex format were accounted to be 37.6 % and a statistically significant majority of the single-sex school were private non-state funded schools, making single-sex schooling in New Zealand selective in nature. The findings of the study are single-sex school students (i) performed significantly better in national School Certificate examinations, (ii) demonstrated higher Burt reading test scores, (iii) were less likely to leave school early, (iv) were less likely to leave school without qualifications, (v) were less likely to have been unemployed by the age of 18 years. The achievements of single-sex students were evident both for boys and girls.

## 3. Materials and Methods

The place of study is Kazakhstan, and particularly, at schools run by Bilim-Innovation International Educational Foundation and Bilim-Orda International Public Fund. Kocak (2019b) performed an in-depth study on these two sister organizations and its schools by taking an interview from the president and school directors and performing content analyses. The foundation runs jointly 28 high schools for gifted children, and these high schools for gifted children distributed as follows: 19 all-boys, 8 all-girls and just one coeducational high school. The foundations also run two coeducational vocational high schools, two coeducational international schools and university.

The two educational foundations graduated almost 20,000 from its schools. To know a statistically significant sample size, the sample size calculator from the SurveyMonkey platform was utilized. The 377 sample size is an optimal size for a 20,000 population with a 95 % confidence level and a 5 % confidence interval (margin of error). To the online survey, the 540 graduates responded, through filtering process 523 remained at hand. The total response of 523 is greater than the statistically significant sample size of 377.

Google Forms software was used to create an online questionnaire. Through "URL shortener" software the link for the online questionnaire was shortened and was sent to alumni coordinators of the schools through WhatsApp. Alumni coordinators forwarded the link to the graduates through the same instant messaging software of WhatsApp. The questionnaire was available from 4th February, 2019 till 14th March, 2019, for the duration of 40 days.

The questions were designed on a Likert scale with answer options "Very much easy" (+2), "Easy" (+1), "Neutral" (0), "Difficult" (-1) and "Very much difficult" (-2). The questions were raised as "How challenging it was to ….?".

Table No. 1 displays the frequency distribution of respondents, the descriptive analysis of the results was achieved by Google Sheets and Minitab software. Table 2 displays an inferential analysis of the collected data. The ANOVA test was applied to compare the statistical difference between the groups. The Minitab statistical software was used in testing the hypothesis of results. The "*" indicates the statistical significant difference with an alpha value of "0.05" and "**" indicates the highly statistical significant difference with an alpha value of "0.01".

## 4. Data analysis

**Table 1.** The frequency distribution of demographic data

| Variable | Category: Frequency | Percentage |
|---|---|---|
| Gender | Male: 368<br>Female: 155 | 70.4 %<br>29.6 % |
| Age | N: 523<br>Mean: 27.792<br>Minimum: 17.000<br>Maximum: 40.000 | 100 % |
| School | Boys' High School: 325<br>Girls' High School: 122<br>Vocational College: 62<br>Coeducational High School: 12<br>Coeducational International School: 2 | 62.1 %<br>23.3 %<br>11.9 %<br>2.3 %<br>0.4 % |
| Schooling Type | Single-sex: 447<br>Coeducational: 76 | 85.5 %<br>14.5 % |
| University graduation | Graduated: 420<br>Pursuing: 92<br>Not graduated: 11 | 80.3 %<br>17.6 %<br>2.1 % |

**Inferential analysis of collected data**

Table 2 displays inferential analysis for H1 (Single-sex school graduates face more challenges to study along with students of opposite-sex in mixed-sex university). The test compares just among respondents who have graduated or pursuing an undergraduate programme at higher educational institutions.

**Table 2.** The inferential analysis of H1

| Category | Factors | N, Mean, StDev | P-Value |
|---|---|---|---|
| All<br>(N: 512) | Coeducational school<br>Single-sex school | 74 1.041 1.232<br>438 0.7991 1.1484 | 0.099 |
| Male<br>(N: 361) | Coeducational school<br>Single-sex school | 41 0.951 1.264<br>320 0.8344 1.1368 | 0.541 |
| Female<br>(N: 151) | Coeducational school<br>Single-sex school | 33 1.152 1.202<br>118 0.703 1.179 | 0.057 |
| All single-sex<br>(N: 447) | Male<br>Female | 121 0.678 1.178<br>326 0.8313 1.1472 | 0.212 |

Table 3 displays inferential analysis for H2 (Single-sex school graduates face more challenges to work along with personnel of opposite-sex in mixed-sex work-space). The test compares just among respondents who have ever worked along with personnel of opposite-sex in mixed-sex work-space.

**Table 3.** The inferential analysis of H2

| Category | Factors | N, Mean, StDev | P-Value |
|---|---|---|---|
| All<br>(N: 425) | Coeducational school<br>Single-sex school | 45 1.200 1.120<br>380 0.9816 1.1027 | 0.210 |
| Male<br>(N: 311) | Coeducational school<br>Single-sex school | 27 1.111 1.121<br>284 1.0176 1.1135 | 0.677 |
| Female<br>(N: 114) | Coeducational school<br>Single-sex school | 18 1.333 1.138<br>96 0.875 1.069 | 0.101 |
| All single-sex<br>(N: 380) | Male<br>Female | 96 0.875 1.069<br>284 1.0176 1.1135 | 0.274 |

Table 4 displays inferential analysis for H3 (Single-sex school graduates face more challenges to adapt to gender psychology of spouse). The tests compare just among respondents who are married or divorced at present.

**Table 4.** The inferential analysis of H3

| Category | Factors | N, Mean, StDev | P-Value |
|---|---|---|---|
| All<br>(N: 308) | Coeducational school<br>Single-sex school | 35 1.057 1.027<br>273 0.8571 1.0837 | 0.302 |
| Male<br>(N: 226) | Coeducational school<br>Single-sex school | 22 0.909 1.109<br>204 0.9118 1.0467 | 0.991 |
| Female<br>(N: 82) | Coeducational school<br>Single-sex school | 13 1.308 0.855<br>69 0.696 1.180 | 0.079 |
| All single-sex<br>(N: 273) | Male<br>Female | 69 0.696 1.180<br>204 0.9118 1.0467 | 0.153 |

## 5. Findings

1. In terms of facing the challenge to study along with students of opposite-sex in mixed-sex university, there is no statistically significant difference between graduates of single-sex and coeducational schools. And there is also no statistical difference between female and male graduates of single-sex schools.

2. In terms of facing challenge to work along with personnel of opposite-sex in mixed-sex work-space, there is no statistical significant difference between graduates of single-sex and coeducational schools. And there is also no statistical difference between female and male graduates of single-sex schools.

3. In terms of opinion about challenge to adapt to gender psychology of spouses, there is no statistically significant difference between graduates of single-sex and coeducational schools. And there is also no statistical difference between female and male graduates of single-sex schools.

## 6. Discussion

Cardona and Kaufmann (2017) revealed that single-sex schooling leads to a decrease in attending a party and having romantic relationships at adolescence and to observe how schooling type effects relationship with opposite-sex after graduation is an interesting study. And through this study's findings, this timely segregation does not lead to gender-based relational challenges.

As Gordillo, 2017 suggests many times debate over single-sex and coeducational educational format takes ideological position and difficult to judge and generalize. This can be observed how Sax and Gurian advocate single-sex education through their scientific discovery of how boys and girls learn differently and also cognitive development differs. And the same view is counter-argued by the Association for Psychological Sciences with opposing scientific discovery (Halpern, 2007), and their argument of there is no need of having segregated education. And hence this particular topic of relationship with opposite-sex in future years is also open for various interpretations.

Mael et. al (2005) conducted a systematic review of literature, to analyze empirical research papers and their findings. Out of 2,221 studies just 40 were shortlisted and comparative analysis was done in 32 outcomes. Hence just one outcome "Percent Married to First Spouse" was dedicated to post-school opposite-sex relationships, this is due to the shortage of research in this area. Mael et. al (2005) also suggested studies to be conducted on the effect of single-sex schooling in work-related long-term outcomes such as job performance, leadership performance, mixed-sex work team performance, performance and leadership in volunteer associations, job involvement, and organizational commitment; which are related to the relationship with opposite-sex in mixed-sex work-space. There are studies on family formation hence studies on working in mixed-sex work-space are negligible. And this particular study hoped to put light on a couple of these angles from Kazakhstan's perspective. However, even more, in-depth studies on these future research suggestions should be carried.

Cardona and Kaufmann (2017) conducted research particularly on the achievement of single-sex school graduates in family formation by using available longitudinal data in the UK. The findings revealed that male single-sex school graduates were disadvantageous in "ever having been married or cohabiting" and "the likelihood of being separated or divorced" in comparison to their counterparts from coeducational schools. There was no difference among female graduates. This study couldn't take this angle as there is no longitudinal data available to compare marriage, separation and divorce. The handful of data collected through the questionnaire was not sufficient.

## 7. Conclusion

Through the findings of this study, it can be concluded that single-sex graduates do not find it more challenging in relationships with opposite sex in post-school mixed-sex spaces, particularly in studying at university, working in the work-place and adapting to gender psychology of spouse. Both single-sex and coeducational school graduates face challenges in opposite-sex in post-school environment hence as noted earlier there is no significant difference between two groups. Overall it can be concluded that there is no negative effect of being educated at single-sex schools for post-school relationship with opposite-sex.

## 8. Suggestions

Parents are encouraged to admit single-sex schools without fear of future challenges of building relationship with opposite-sex. The more study should be carried out in this direction to be able to understand and to draw conclusions on this subject. A particular study to compare single-sex and coeducational schools for gifted children should be carried out. An in-depth study of family formation outcome with various variables will be advised. Effects of educational type on leadership style of mixed-sex work-place managers, will be an interesting research.

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