

SINGLE-SEX EDUCATION: DOES IT MAKE A DIFFERENCE TO STUDENTS' ACADEMIC ACHIEVEMENT?

Surya Fajar Cahyo Nuraeni

Monash University, Australia

correspondence: suryafajarcn@gmail.com

<https://doi.org/10.24071/ijiet.v4i2.2223>

received 21 November 2019; accepted 12 July 2020

Abstract

Gender gap in education has been Indonesian government's big concern (Bappenas, 2013). The Ministry of National Development Planning of Republic of Indonesia has reflected data showing gender gap in academic achievement among boys and girls in Indonesia. They also realize the importance of catering for gender differences during teaching and learning process. They believe that providing single-sex education is an effective way to narrow gender academic achievement gap in schools. In this paper, single-sex education, coeducational education, and academic achievement become the core concepts to analyse this issue. The result of this investigation proves that single-sex education enables teachers to address gender differences in their classroom, enhances students' motivation, and increases students' participation in learning process. Finally, these are beneficial to students' academic achievement. The discussion of this investigation brings implications for education practitioner to promote the implementation of single-sex education as it has positive impacts on students' academic achievement. In addition, the discussion is expected to have implications for policy makers to consider the needs of implementing single-sex education to narrow gender academic achievement gap.

Keywords: academic achievement, single-sex education

Introduction

Single-sex education is not a new educational practice and it has been growing for decades in many countries, including in Indonesia. In Indonesia, coeducational education is perceived as an ineffective system that results in academic achievement gap among boys and girls. The Ministry of National Development Planning of Republic of Indonesia summarises the results of the last four Programme for International Student Assessment (PISA) held in Indonesia that reveal boys' underachievement in Bahasa Indonesia and English literacy (Bappenas, 2013). They also report the results of Quality of Education in Madrassah Study (QEM) conducted by the Ministry of Religious Affairs of Republic of Indonesia in 2011 showing that while boys fell behind girls with their languages, they outperformed girls in Science, and that they made no difference in Mathematics (Bappenas, 2013). This strengthens gender stereotypes regarding

those subjects. Moreover, this leads to gender bias that affects teachers' negative attitudes during teaching and learning process. Furthermore, gender differences in interests still exist among boys and girls in Indonesia. Data shown by a regional office of the Department of Education in Indonesia reports that among thirty four vocational high schools in a city, two of them are boys' schools, and another one is a girls' school (Diknas Padang, 2017). This reflects that boys and girls have different interests towards major or field of study. These, finally, reinforce the idea of providing single-sex education to narrow gender gap in academic achievement in Indonesia in the future.

The provision of single-sex education is derived from the awareness that coeducational education does not enable teachers to accommodate gender differences among boys and girls in their classroom, a crucial element of an effective teaching and learning process. Opponent against single-sex education may think that boys and girls are the same, both characteristics and learning style. In fact, research has shown that boys and girls are different in terms of physical, cognitive, personal, and social domains that affect their learning style (Ormrod, 2008). These differences need to be concerned by teachers in order to maximise learning process and achieve equal academic achievement (Ormrod, 2008). This strengthens the belief that single-sex education is able to accommodate gender differences among boys and girls as well as to narrow the gap in their academic achievement. By implementing single-sex education, all students will receive equal opportunities during teaching and learning process, regardless of their gender. This will motivate them to participate fully in that process. Consequently, many believe that this practice brings benefits to students' academic achievement. For clarity purposes, single sex education is clearly defined as any education levels that separate students based on their gender (U.S. Department of Education, 2005). On the contrary, coeducational education refers to mixed-gender education where both boys and girls are educated together (U.S. Department of Education, 2005). Then, academic achievement is well explained as "learned proficiency in basic skills and content knowledge" (McCoy, Twyman, Ketterlin-Geller, & Tindal, 2005, p. 9). Those key terms will guide this essay to critically examine the benefits of implementing single-sex education to students' academic achievement.

Therefore, this paper will argue that single-sex education benefits students' academic achievement. The discussion will begin by presenting critical argument about the positive impacts of single-sex education on students' academic achievement. Then, this will lead to three supporting arguments arguing the benefits of implementing single-sex education to students' academic achievement.

Firstly, single-sex education gives teachers opportunities to address gender differences in their classes. Secondly, it positively affects students' motivation. Finally, this education practice improves students' participation during teaching and learning process. These three supporting arguments will be supported by academic evidence and relevant literature. Some critiques evaluating these concepts will also be presented. Finally, a conclusion and implications will be presented based on three supporting arguments.

Theoretical Framework

In most countries, including in Indonesia, gender issue in education is a big concern. This is influenced by a raise in the government awareness of gender equality in education. Concerning this issue, Indonesian government focus on inequality education outcomes, boys' and girls' underachievement, gender bias, and gender stereotypes in the educational field. The government come to realise that boys and girls have different learning styles and it requires curriculum and teaching learning strategy that respect this difference (Bappenas, 2013). This implies that the existing education practice which is coeducational education does not successfully deal with this concern. Meanwhile, eliminating gender bias and gender stereotypes as well as narrowing gender gap in education are the Indonesian government's ultimate goals (Bappenas, 2013). Additionally, they put academic achievement on the top of everything. As a result, single-sex education is perceived as an obvious answer to achieve the goals. It has been claimed that single-sex education contributes towards students' academic achievement, particularly in narrowing gender gap in their achievement.

Many studies are conducted to examine whether single-sex education results in both boys' and girls' academic achievement improvement. Spielhofer, Benton, and Schagen (2004) conducted a study examining the results of General Certificate of Secondary Education (GCSE) in England. Based on their study, it concludes that girls perform better in single-sex schools than their peers in coeducational schools and girls with lower scores benefit more from this education setting. Also, it reveals that boys whose achievement is low perform better in single-sex schools than those in mixed schools (Spielhofer et al., 2004). Confirming this result, Malacova (2007) conducted a study in UK to examine the students' progress from Key Stage 3 (KS3) to GCSE. The findings have shown that boys and girls in single-sex schools progressed higher than those in coeducational or mixed schools and they made improvement in every subject taken. Meanwhile, the girls in coeducational schools made the lowest progress (Malacova, 2007). Benefits of sex-segregated schools are also found in elementary level. Malik and Mirza (2014) find out that both gender involved in their study achieve better academic results in single-sex schools than those in coeducational schools. Further, the study proves that the girls' academic results in coeducational schools are more affected than those of boys (Malik & Mirza, 2014). This implies that girls' academic achievement depends on learning environment and the presence of opposite-sex peers. Thus, it is important to examine the way single-sex education positively impacts on students' academic achievement. There are three benefits of this educational practice that I will argue for.

Addressing Gender Differences in Classroom

The first reason why single-sex education benefits students' academic achievement is that it allows teachers to accommodate gender differences existing among boys and girls during teaching and learning process. When designing gender-differentiated instruction for their classes, teachers need to consider boys' and girls' physical activity differences. Ormrod (2008) states that boys are more

active than girls. Boys tend to keep moving and active while girls can sit still for reading, for example. Often, boys have problems with school discipline and this causes teachers to pay more attention to them during teaching and learning process. In addition, girls develop their physical faster than boys (James, 2007). For instance, girls complete their puberty faster than boys and it influences their emotional and cognitive development. This makes them more mature for their age compared to boys and reflects their different ways of thinking. Also, cognitive differences among boys and girls should become teachers' concern. James (2007) explains that a slight different in boys' and girls' brain anatomy leads girls to spend more time making decisions and change it often while boys can quickly consider and decide something. In addition, James (2007) remarks that boys are better in remembering facts relating to spatial relationships and girls are better in details and word-related. This is why boys like math and science more than languages or social studies. Then, Ormrod (2008) claims that boys perform better at visual-spatial tasks and girls have better verbal skills that enable them to talk more. Considering this, there is a need for teachers to address these unique differences when giving instructions in their classes. This is not possible to be done in coeducational education context where boys and girls are taught together despite their differences.

In single-sex setting, teachers will have opportunities to modify instruction or teaching strategy based on gender differences. This is perceived as a prerequisite for an effective teaching and learning process (Ormrod, 2008). In order to gain maximum learning objectives, teachers value group differences among their students as they cannot expect an instruction to work well regardless gender differences. Ormrod (2008) suggests the idea about equity in teaching that requires teachers to eliminate bias while giving class instruction. This is almost impossible to be done in mixed-gender classes since teachers tend to disadvantage one gender group as they implement teaching instruction that works for another gender group that needs more attention. Thus, separating boys and girls while studying creates this opportunity. A study conducted by Martino, Mills, and Lingard (2005) in nineteen schools across countries in Australia has found that teachers tend to modify their teaching strategy based on different stereotypical characteristics of boys and girls. For example, a teacher involved in this study avoided giving boys open-ended tasks since they concerned boys' orientation to learning. In addition, they designed a teaching strategy that provided fast paced tasks, games, and physical outdoor activities for boys and gave girls tasks requiring longer process since they concerned more about learning process and did not mind sitting still for longer period (Martino et al., 2005). It implies that gender-based teaching strategy encourages students to be more engaged with subjects taught because they find themselves accommodated by their teachers. In addition, Wills, Kilpatrick, and Hutton (2006) highlight boys' and girls' different learning styles that girls learn through open-ended tasks while boys prefer to apply abstract principles to learn and that teachers should consider this to teach effectively. This is addressed by teachers while designing teaching strategy for their single-sex classes.

However, opponents argue that addressing gender differences by splitting boys and girls can lead to gender issue about apparent lack of interaction between boys and girls (Warrington & Younger, 2001). In single-sex classes, gender homogeneity does not give them opportunities to share ideas or even to interact with opposite gender. They also perceive this as a negative impact on boys' and girls' development. In fact, Warrington and Younger (2001) believe that boys and girls still have opportunities to socialise and interact with each other outside classroom. In order to justify this claim, Warrington and Younger (2001) conducted a case study in single-sex classes in a high school in England. From the teachers' perspective, the finding concludes that there is almost no possibility that students will be socially isolated because boys and girls can still meet each other and make friends when they are in the playground, in the same extra-curricular activities, or outside the school. In other words, boys and girls are only controlled to be with their same-sex peers when they are in the classroom and there is no control of their social life outside the classroom. It means that implementing single-sex education does not restrict both boys and girls to socialise with peers across gender.

Therefore, implementing single-sex education gives teachers supports to design pedagogical strategy suitable for both boys and girls. This will positively affect teaching and learning process and academic outcomes even though a little concern about boys' and girls' lack of interaction raises. This is unjustified as boys and girls can still interact and participate in extracurricular activities together. In other words, students in single-sex setting experience effective teaching and learning process that will increase their motivation.

Increasing Students' Motivation

Gender-based instruction in single-sex education enables teachers to provide effective teaching and learning activities that lead to the development of supporting learning environment for students. In single-sex setting, teachers can accommodate different behavior of boys and girls in which boys are likely to be dominant in classes and often misbehave while girls tend to be quiet and worry about other people's comments on what they do in the classroom (Ormrod, 2008). This is addressed by teachers to ensure that their students find their classroom comfortable place for studying. Several studies have shown positive impacts of single-sex education on learning environment that it reduces students' anxiety by eliminating the presence of opposite-gender in the classroom, controls distractive behaviour, and gets students focussed (Kissau, Quach, & Wang, 2009; Martino et al., 2005; Parker & Rennie, 2002; Warrington & Younger, 2001; Wills et al., 2006). This creates positive learning environment for students to grow their learning motivation that coeducational education cannot provide them. Kissau et al., (2009) conducted a study to examine the impact of single-sex instruction on students' motivation to learn Spanish in a high school in Canada. This study reports that in a single-sex classroom, boys will develop their sense of friendship in which they support each other during learning activities that grow their motivation at the same time. Further, this study reveals that learning situation affects boys' motivation more than that of girls. Strengthening the position of

students' learning motivation, Ormrod (2007) highlights the importance of learning motivation in cognitive process and improvement of academic performance through persistence in meaningful learning. Hence, single-sex education is valued as an effective way to raise students' motivation, particularly boys, for language learning.

Despite its positive impacts, girls are reported complaining about incessant talking among their group. They tend to generalise their same-sex peers as talkative that possibly negatively affect conducive learning environment (Kissau et al., 2009). This creates unsupportive learning environment that reduces students' learning motivation. However, this classroom problem is not insolvable. In order to solve this problem, teacher's role in classroom management is crucial. Ormrod (2008) suggests teachers to present rules and instruction to give students information about how they should behave in the classroom to make sure that learning activities run well. Another suggestion is given by McInerney and McInerney (2002) that recommends teachers to develop appropriate behavior in the first few weeks. Establishing expected behavior in the classroom, students, particularly girls in this case, will have idea about what they should and should not do in the classroom. For instance, teachers may tell students, "Get on with something quiet when you've finished your set work or you are waiting for the teacher" (McInerney & McInerney, 2002, p. 253). This will control students' excessive talking and can be a strategy to quiet a noisy class. McInerney and McInerney (2002) also propose the idea for teachers to involve students when designing classroom rules and the need of use inclusive language. Take the use of phrases "in our class", "we should" as example to engage students with rules in their classroom to develop positive classroom atmosphere. Hence, girls' negative behaviour is controllable and good classroom management is the key teachers should consider.

To conclude, single-sex education positively affects learning environment that greatly contributes to students' learning motivation, regardless their gender. In addition, single-sex education gives students opportunities to be less anxious and more focussed that finally support them to learn meaningfully. However, girls often complain about their over talkative friends that get them frustrated. To solve this problem, teachers are recommended to manage their classes by giving rules and instructions to control girls' negative behaviour.

Fostering Students' Participation

Single-sex education does not only grow students' learning motivation but also foster students' active participation during teaching and learning process. Implementing single-sex education means addressing boys and girls' differences in terms of their learning motivation and sense of self. Girls, according to Ormrod (2008), concern about their best performance in schools more than boys' concern. This encourages girls to be more serious and diligent in classes. However, this discourages them to take risks in their academic experiences and find failure distressing (Ormrod, 2008). They tend to do tasks that they are sure about. Meanwhile, boys are likely to take risks and perceive failure as a step towards improvement. Additionally, boys and girls have different sense of self. While

boys tend to overestimate their academic abilities, girls often underestimate theirs (Ormrod, 2008). Ormrod (2008) also believes that boys and girls develop their own stereotypes. It is perceived that boys are good at Mathematics and Sports and girls are good at reading and Social Studies despite the fact that they have equal abilities. This self-perception leads both boys and girls to encourage and discourage themselves while studying those stereotyped subjects. This has to be surely noticed by teachers to consider the way they encourage students during learning process and single-sex setting allows teachers to do so. Otherwise, these stereotypes will remain exist.

As explained previously, single-sex education creates conducive learning environment and increases students' learning motivation. These two factors foster students' active participation in the classroom. In the absence of opposite-gender in single-sex education, students can boost their confidence and increase their focus. Hart (2016) conducted a study in a middle school in USA involving female students and their teachers. The findings show that 80% of the participants perceived single-sex classroom as supportive setting that enables girls to have positive interactions with their peers and boost their confidence. In addition, 53.3% of participants admitted that they were more focus on learning without presence of boys and their disruptive behavior in the classroom. An important key finding of this study is this environment motivated girls to take risks participating in asking and answering questions because there was no boy who would make fun of them (Hart, 2016). It implies that single-sex education is an effective way to reduce learning anxiety and increase students' confidence that increases students' participation. Hart (2016), then, concludes that this positive environment combined with students' confidence and participation results in better academic achievement in separate classes.

Attention given by teachers also encourages students to actively participate in the teaching and learning process. Younger and Warrington (2006) highlight that single-sex education advantages both boys and girls in enhancing their participation. In segregated classroom, boys get teachers' full attention that allows them to participate more in the classroom without girls' domination and girls take opportunities to learn better under teachers' guidance without being distracted by boys' disruptive behavior. Additionally, single-sex education encourages boys to work collaboratively with their peers (Younger & Warrington, 2006). Without girls' presence, they will not be shy to discuss anything with their peers and ask for help to do the work. Hence, students' participation will increase without presence of opposite-sex.

Although single-sex education enables students to participate more during teaching and learning process, it possibly results in girls' behavior problem that challenges teachers. A study carried out by Younger and Warrington (2006) reveals the fact that some teachers in a single-sex setting find teaching girls-only classes challenging and energy consuming as girls often exaggerate problems and bring it to the classroom. Moreover, compared to boys, girls tend to think over problems and need more time to calm down. Hart's (2016, p. 37) study reports that "girls-drama" is a frequent problem happening in a single-sex classroom. However, teachers can benefit from this problem as it offers social topic for

discussion with girls, such as topic about appropriate behavior that can be implicitly taught by teachers during discussion (Hart, 2016). Through this discussion, positive relationship between students and teachers will be built. Also, teachers will grow students' sense of community when they establish positive relationship. Ormrod (2008) believes sense of community resulted from positive relationship in the classroom will positively affect students' emotional and learning motivation. When students feel accepted in their community, they will be more relaxed and find their learning environment enjoyable and this will encourage them to confidently actively contribute to learning process. This proves idea proposed by Gurian (2011) about perceiving failure in the classroom as a teaching tool. Thus, "girls-drama" will not remain as a problem when teachers are able to manage and take its benefits.

To sum up, supportive setting offered by single-sex education leads students to be more motivated during learning activities. This positively affects their confidence to participate in the teaching and learning process. In this setting, absence of boys or girls is positively valued by both boys and girls. On the contrary, this might be a challenge for teachers to deal with girls-drama. However, when teachers can perceive this problem as a positive implication, they will use it as a discussion topic with girls to have positive relationship and personal development.

Conclusion

In this paper, it is argued that single sex-education brings benefits to students' academic achievement. Three benefits of single-sex education provision support this belief. First, it has been noted that there are gender differences among boys and girls that require teachers to accommodate these differences when giving instruction in their classes. Here, single-sex education allows teachers to cater for gender differences in order to maximally gain learning objectives that affect their academic achievement. However, others believe that this possibly results in lack of interaction with opposite-sex that negatively impacts on students' personal development. In fact, this is not a problem since students still have opportunities to interact with both boys and girls outside their classroom, through an extracurricular activity, for instance. The second benefit is that this education practice encourages students to grow their learning motivation. The absence of opposite-gender in the classroom results in a positive impact that students perceive their classes as positive and supporting setting for studying. This positively influences their learning motivation. On the other hand, students in girls-only classes find their peers talkative that may create classroom problems. In order to prevent this, teachers are encouraged to give students rules and instructions for behavior control. The last point is that single-gender environment increases students' participation during teaching and learning process. Positive environment combined with learning motivation grow students' confidence to actively interact and participate in the classroom activities. Nevertheless, "girl-drama" becomes a challenge faced by teachers. Girls tend to be sensitive and to overthink problems that will affect their focus. Regarding this challenge, teachers

can take advantage of this phenomenon as a discussion topic with girls that will bond teachers-students relationship and to improve girls' personal development. Therefore, it is believed that these three factors benefit students' academic achievement. Finally, the findings discussed in this paper are expected to bring implications for education practitioners and policy makers to promote and consider the implementation of single-sex education to narrow gender gap in academic achievement. Further, it also brings implications for future researchers to investigate this issue in Indonesian context as there is scarce research done in this area.

References

- Bappenas. (2013). *Kaji ulang satu dekade pengarusutamaan gender bidang pendidikan di Indonesia: Ringkasan eksekutif* [Review of a decade of gender mainstreaming in education in Indonesia: Executive summary]. Retrieved from <http://www.acdp-indonesia.org/wp-content/uploads/2013/10/ACDP-005-Kaji-Ulang-Satu-Dekade-Pengarusutamaan-Gender-Bidang-Pendidikan-di-Indonesia-Ringkasan-Eksekutif.pdf>
- Diknas Padang. (2017). *Data SMK Dinas Pendidikan* [Vocational High School Data by Department of Education]. Retrieved from <http://www.diknas-padang.org/mod.php?mod=sekolah&op=sek&kat=SMK>
- Gurian, M. (2011). *Boys and girls learnt differently!: A guide for teachers and parents* (10th ed.). San Francisco, CA: Jossey-Bass.
- Hart, L. C. (2016). When "separate" may be better: Exploring single-sex learning as a remedy for social anxieties in female middle school students. *Middle School Journal*, 47(2), 32-40. doi: <http://dx.doi.org/10.1080/00940771.2016.1124660>
- James, A. N. (2007). *Teaching the male brain: How boys think, feel, and learn in school*. Thousand Oaks, CA: Corwin Press.
- Kissau, S., Quach, L., & Wang, C. (2009). Impact of single-sex instruction on student motivation to learn Spanish. *The Canadian Journal of Applied Linguistics*, 12(2), 54-78. Retrieved from <https://journals.lib.unb.ca/index.php/CJAL/article/view/19938/21815>
- Malacova, E. (2007). Effect of single-sex education on progress in GCSE. *Oxford Review of Education*, 33(2), 233-259. doi: 10.1080/03054980701324610
- Malik, R., & Mirza, M. S. (2014). Gender differential academic achievement of students in single-sex and coeducational primary schools in Pakistan. *Bulletin of Education and Research*, 36(1). Retrieved from http://www.pu.edu.pk/images/journal/ier/PDF-FILES/1_Malik%20&%20Munawar_V36-no1-2014.pdf
- Martino, W., Mills, M., & Lingard, B. (2005). Interrogating single- sex classes as a strategy for addressing boys' educational and social needs. *Oxford Review of Education*, 31(2), 237-254. doi: 10.1080/03054980500117843
- McCoy, J. D., Twyman, T., Ketterlin-Geller, L. R., & Tindal, G. (2005). Academic achievement. In Lee, S. W. (Ed.), *Encyclopedia of school psychology* (pp. 8-12). Thousand Oaks, CA: Sage Publications.

- McInerney, D. M., & McInerney, V. (2002). *Educational psychology: Constructing learning*. Frenchs Forest, NSW: Pearson Education Australia.
- Ormrod, J. E. (2008). *Educational psychology: Developing learners* (6th ed.). Upper Saddle River, NJ: Pearson/Merrill/Prentice Hall
- Parker, L. H., & Rennie, L. J. (2002). Teachers' implementation of gender-inclusive instructional strategies in single-sex and mixed-sex science classrooms. *International Journal of Science Education*, 24(9), 881-897. doi: 10.1080/09500690110078860
- Spielhofer, T., Benton, T., & Schagen, S. (2004). A study of the effects of school size and single-sex education in English schools. *Research Papers in Education*, 19(2), 133-159. doi: 10.1080/02671520410001695407
- U.S. Department of Education. 2005. *Single-sex versus coeducational schooling: A systematic Review*. Retrieved from <https://www2.ed.gov/rschstat/eval/other/single-sex/single-sex.pdf>
- Warrington, M., & Younger, M. (2001). Single-sex classes and equal opportunities for girls and boys: Perspectives through time from a mixed comprehensive school in England. *Oxford Review of Education*, 27(3), 339-356. doi: 10.1080/03054980120067393
- Wills, R., Kilpatrick, S., & Hutton, B. (2006). Single-sex classes in co-educational schools. *British Journal of Sociology of Education*, 27(3), 277-291. doi: 10.1080/01425690600750452
- Younger, M. R., & Warrington, M. (2006). Would Harry and Hermione have done better in single-sex classes? A review of single-sex teaching in coeducational secondary schools in the United Kingdom. *American Educational Research Journal*, 43(4), 579-620. doi: 10.3102/00028312043004579