

Ask: NUS Economists

Single-sex schools linked to better student performance

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Q Are single-sex learning environments better?

A What do schools like Nanyang Girls' High School, Raffles Girls' School, Raffles Institution and Methodist Girls' School – traditionally known to produce the highest academic achievers – have in common?

You probably guessed correctly. They are single-sex schools. It is no wonder many people believe that single-sex learning environments are more effective in supporting students than co-educational (co-ed) ones. Many people form these beliefs based on simple comparisons between the O-level or A-level results of students from single-sex schools and those from co-ed schools.

Unfortunately, this line of reasoning is incorrect. We can conclude that single-sex environments are better only if the composition of students in single-sex and co-ed environments is similar. If this is the case, we can

reasonably attribute any difference in the academic performance across both groups of students to peer sex composition.

However, the composition of students in single-sex schools and co-ed schools is certainly not similar. For one thing, the majority of single-sex schools in Singapore are highly selective and have very stringent entry requirements.

Last year, for instance, the Primary School Leaving Examination cut-off requirements for entry into single-sex schools like Nanyang Girls' High School and Raffles Institution were a high 264 and 257 respectively. By virtue of this, students entering single-sex schools typically possess stronger academic abilities to begin with.

So the fact that students from single-sex schools eventually score higher on their exit exams might simply be a reflection of this. This example highlights why simple comparisons might provide misleading conclusions.

Understanding whether students truly learn better under single-sex or under co-ed environments is important because it helps inform the debate on single-sex versus co-ed schools (see "Single-sex schools do not benefit students", ST, Nov 25, 2017, and "Unique advantages to single-sex schools",

ST, Dec 13, 2017).

While proponents of co-ed schools argue that co-ed environments are better because they promote healthier social interactions between students of both sexes and thereby reduce gender stereotypes, proponents of single-sex schools argue that single-sex environments are superior because they empower students, especially girls, to pursue courses and interests in areas which are stereotypically for the opposite sex. They also argue that the tendency for students to get distracted by peers of the opposite sex and to become overly concerned with physical appearance is lessened, which allows more time for learning.

Further, they note that placing females in single-sex environments might induce them to become more competitive and, hence, higher achieving. It is difficult to say who is right because both sets of arguments have some truth in them. Answering the question precisely requires an in-depth examination of data.

Cognisant of the biases involved in using simple comparisons, education researchers have turned to more sophisticated statistical methods to evaluate the effectiveness of single-sex schools over co-ed ones.

A good chunk of the most reliable research is based on the experience of South Korea because of a unique feature of schooling in its capital city, Seoul. Specifically, upon graduation, middle school students in Seoul are randomly assigned to high schools within their districts. Students are not allowed to choose their schools. Because some high schools are co-ed while some are single-sex, this procedure effectively randomly assigns students to either a co-ed school or a single-sex high school. This creates a situation where the composition of students in co-ed schools is similar to that in single-sex schools.

A stream of academic studies has

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explored this institutional feature, including those by University of Pennsylvania professors Park Hyun-joon, Jere Behrman and Choi Jae-sung, as well as University of Southern California professors Moon Hyung-sik and Geert Ridder, and Professor Eleanor Choi from Hanyang University.

These studies find that attending single-sex schools, as opposed to co-ed schools, is significantly associated with better student performance (in these studies, student performance is measured by scores received on the Korean national college entrance exam, a standardised testing system similar to the A-level exams in Singapore).

While this presents evidence that single-sex schools are more effective than co-ed schools, the exact reasons for this are unclear.

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To answer this, Prof Park and his colleagues additionally look for differences in a variety of observable characteristics between single-sex and co-ed schools, including teacher quality, class size, and whether the school is public or private. They continue to find a substantial positive effect of attending single-sex schools, lending support to the notion that students learn better when exposed to peers of the same sex.

Similar conclusions are reached by University College London professors Christian Dustmann and Ku Hye-jin, and Professor Kwak Do-won from Korea University.

They used data from high schools in Seoul and noted that some of the existing single-sex schools were converted to co-ed in the late 1990s and 2000s, so that the first cohort

admitted under the co-ed regime to such schools had exposure to peers of both genders in classrooms while preceding cohorts had exposure only to peers of one sex. They found that greater exposure to mixed-gender peers led to worse academic performance for both boys and girls.

Though the precise quantitative effect of single-sex versus co-ed schooling varies with the empirical approach used, the majority of studies which rely on credible methods tend to find that single-sex schooling has either positive or, less commonly, no detectable effects on student performance. Negative effects are rarely ever found. This suggests that single-sex education is likely to have neutral to positive impacts on student performance.

These results do not mean that we should convert all existing co-ed schools to single-sex, however, since such a change would necessarily also induce other changes, such as an alteration of the behaviour of teachers and parents, which might ultimately nullify the benefits of a single-sex policy.

But at the very least, they question the wisdom of proposals made by some members of the public to abolish single-sex schools ("Single-sex schools do not benefit students", ST, Nov 25, 2017).

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