



## **Training Program Results Beat 30 Years of Research**

Study of philosopher-led thinking skills training for 79 Secondary One students shows significant impact on student performance

79 students from St. Hilda's Secondary School were selected for a study to determine if a new thinking skills program had any significant impact on their academic performance. For 11 weeks, these students were subjected to one and a quarter hours of training by LogicMills, a private Singapore-based company founded by SMU professor Dr. Mark Nowacki.

Compared to 80 other students who did not receive the training, the 79 students showed better average improvement scores in 4 out of 6 subjects measured. The largest impact of a 7.8 point increase was seen in Mathematics, followed by Science, History and English. In addition to displaying a greater velocity of learning, the LogicMills-trained students scored higher absolute scores, on average, in all six subjects.

What appears to have made a difference is the team of instructors who are philosophically trained. In fact, the founders of LogicMills teach the subject at SMU.

Broad and widespread research over the past 30 years in multiple countries has shown that thinking skills programs are effective in significantly improving students' performance on a range of tests (compared to students who did not receive such training). In one particular study, it was found that, after 18 sessions, students increased scores in both logical reasoning and reading comprehension. In the case of St. Hilda's, the results far exceeded expectations based on these world-wide studies.

Elaborating on past studies, Professor Mark Nowacki said, "Research has shown that philosopher-led training programs have a far greater impact. And now the results from St. Hilda's further attest to that."

He further added, "Logic is a part of philosophy and logical thinking is the key professional skill of the philosopher. To get good at thinking, we must go back to our logical roots. Which is why we at LogicMills have so many university professors and professional educators who have been philosophically trained."

The entire St. Hilda's study was designed according to international standards for academic journal publication. A total of 159 secondary one students were randomly selected, out of which 79 were given the training. The other 80 students formed the control group, against which the 79 students were measured.

Prior to the training, the students' PSLE results, a pre-IQ test and St. Hilda's own mid-year exam (SA1) results were used as base measures. These were then compared with a post-IQ test and the school's own end-of-year (SA2) exam, which were conducted after the 11 weeks of training.



Comparisons were made between the 79 students' SA2 and SA1 results. Comparisons were also made between the SA2 scores of the experimental and control groups.

What surprised LogicMills was that there was an improvement even in IQ scores because IQ measures innate ability. Furthermore, there was an expectation that there would be a large divide in IQ comparatively between Normal Academic and Express Students. But this did not happen.

St. Hilda's is currently continuing its partnership with LogicMills to study the effectiveness of the new training program further. The LogicMills program has been extended to the entire secondary two cohort at St. Hilda's, and discussions are underway to offer the LogicMills program to other cohorts.

#### **Academic benefits of using the LogicMills method**

The main benefits of the LogicMills method are improved scores in school subjects as diverse as mathematics and science on the one hand to English and History on the other, though the extent of improvement varies widely with the technical subjects showing quicker and deeper improvement. There have been discernible improvements even in things like IQ tests, which have traditionally been regarded as hereditary. The teaching method also shows significant improvements in group behaviour, with examples of relatively timid people gaining the confidence to take on peers who are arrogant but not entirely consistent. Better concentration in class as well as greater interest and better retention of subject material has also been observed. Prior to the St. Hilda's-LogicMills study, most of the benefits (from other Singapore-conducted thinking programs) have been assessed qualitatively. The St. Hilda's study is the first quantitative study of its kind that is rigorous enough to meet international research publication standards.

**The quantitative results of this evaluation exercise are shown below –**

<b>Subject/Aptitude</b>	<b>Average improvement due to LM training over expected base improvement (raw points)</b>	<b>Average improvement due to LM training over expected base improvement (as a percentage)</b>
English	+0.8	+7.5%
Mathematics	+7.8	+493.7%
Science	+4.7	+22.7%
History	+4.5	+41.3%
IQ (visual organization)	+17.67	+672.6%

*LogicMills was established in 2004 with the aim of developing the fundamentals of analytical thinking in youths. It was founded by Professor Mark Nowacki, currently part of the faculty at the Singapore Management University.*

*If you would like more information about this topic or schedule an interview with either Eunice Nowacki (Managing Director of LogicMills) or Professor Mark Nowacki, please contact Eunice at 6883-2171 or email her at [eunice@logicmills.com](mailto:eunice@logicmills.com).*