Summary of Education Survey Results

Methodology

A total of 447 individuals were surveyed. Analysis was done on SPSS statistics.

The average age of surveyed students was 9.93. 80% of students are between 7 and 12 years old (inclusive).

Demographics

Family Demographics

The mean number of children in the families surveyed is 3.25. The smallest number of children in these families is 1, while the largest number of children is 8.

The mean number of adults (aged 25 and above) in these families is 1.87, with the smallest number of adults at 0, and the largest number of adults at 4.

The mean household size is 4.98. The smallest household has only 1 person, while the largest household has 10 people.

Analysis of the household demographics and academic results showed that greater number of children and larger household size correlates with lower grades in English, Mathematics, and Science.

This trend could be due to a reduced ability of parents to be involved in a child's education when they have more children, as their time and resources have to be divided amongst more people.

Schools

The largest percentage of students are from Gan Eng Seng Primary School (39%), with others coming from schools such as Blangah Rise Primary School, Zhangde Primary School, Queenstown Primary School, and New Town Primary School.

89% of students are in primary school, with the highest number (20% of total) in Primary 3.

The level of the student does not have significant correlation with their academic results, except in mathematics. Mathematics results appear to become significantly worse as students advance to higher levels in school.

This suggests that students who do well in early years of school will continue to do well in later years, and the increasing difficulty in later school years will not significantly impact their grades.
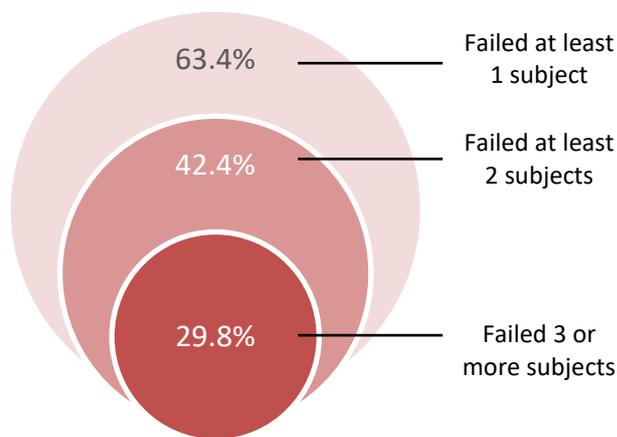
Attendance

A vast majority of students (93%) attend school 5 out of 5 days a week. This suggests that school-going problems are not severe, and that factors other than attendance are affecting the students' grades.

Academic Performance

Failing Rates of Individual Subjects
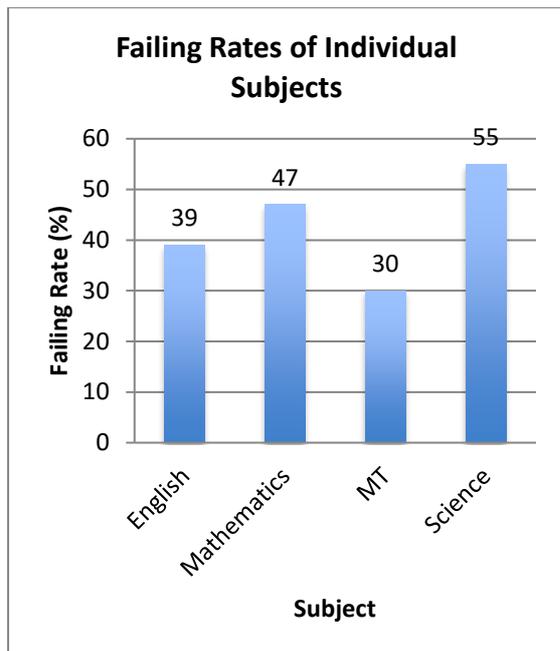
On average, students were failing 1.496 of their subjects.

- 63.4% — Failed at least 1 subject
- 42.4% — Failed at least 2 subjects
- 29.8% — Failed 3 or more subjects

Relationship Between Subjects

Highly significant correlations were observed between all 4 subjects. This suggests that students strong in one subject would typically also be good at their other subjects, and vice versa for students weak in a subject.

Mediation analysis was carried out to determine the relationship between the 4 subjects, using the PROCESS macro for SPSS (A F Hayes).

English, Mathematics, and Science

The following relationship was determined between English, Mathematics, and Science.


Means affects
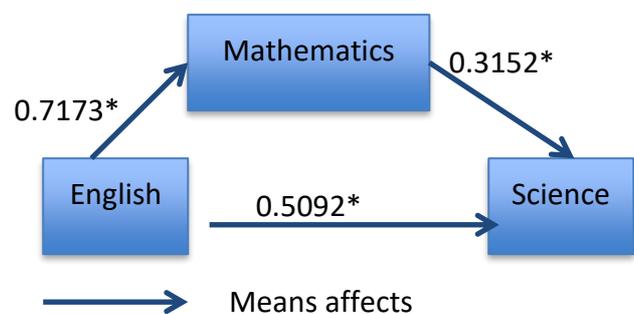
* indicates that the pathway is significant

The model shows that English affects Science directly, but also affects Science indirectly through mathematics. This could be because both Mathematics and Science are taught in English, but Science requires both comprehension skills from English and logical thinking abilities from Mathematics.

The analysis also showed that English affects Science more directly, compared to indirectly.

Mother Tongue, English, Mathematics and Science

Similar mediation analysis was carried out with all 4 subjects, and the following relationship.
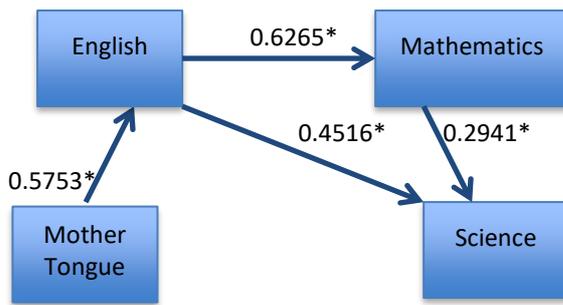
Mother Tongue appeared to only significantly impact English. However, as described above, English in turn had a significant impact on Mathematics and Science.

Mother Tongue affects Science indirectly more than it does directly. The main pathway in which this indirect effect occurs is when Mother Tongue affects English, and English in turn affects Science. The next largest pathway is when Mother Tongue affects English, English affects Mathematics, and Mathematics affects Science.

Other Involvements

Of the 355 that responded about their other involvements outside of school, 312 were involved in at least one programme.

Students' other involvements included programmes with Self-Help Groups, Studentcare, CCAs, Family Service Centres, and Beyond Social Services. Students could have multiple other involvements.

Many students were involved in CCAs (180 students), and Self-Help Groups (155 students).

There was no significant correlation between the number of other involvements students had and their academic results.

There was also no significant correlation between each of the other involvements and academic results, except between Mother Tongue and participation with Beyond Social Services.

Conclusion

Failing rate of the surveyed students was 39% for English, 47% for Mathematics, 30% for Mother Tongue, and 55% for Science. Although we currently do not have a control group for comparison purposes, we believe that this performance is below average for the Singaporean student population.

This study indicates a link between academic achievement and income, since most surveyed students are from lower-income families. Several studies have similarly shown that students from lower-income families tend to fare more poorly in school[i][ii].

We hope to address this problem by increasing focus on English in our education programmes, creating motivation to learn, and by forming partnerships with parents.

Increased Focus on English

English appears to be of particular importance since it is significantly related to the other 3 subjects. For Mathematics and Science, lessons in school are taught in English, so it would be beneficial for students to have a stronger grasp of the language. Meanwhile, Mother Tongue is also a language, and similar skills are needed for both subjects.

Since there are strong correlations between

the subjects, when a student's English improves, their grades in other subjects should ideally improve as well. Strengthening of English programmes is hence likely to allow for a more beneficial education programme for students.

Creating Motivation to Learn

Literature reports that lack of interest can negatively impact a student's grades in a subject[iii]. Furthermore, if students do not enjoy schoolwork and studying, their level of involvement in academic work may decrease, leading to lower quality of work[iv].

As mentioned above, if a student is weak at a subject, this tends to correlate with weaker grades in all other subjects. It is thus possible for a lack of interest in one subject to lead to lower grades in the subject, and subsequently negatively impact the student's grades in other subjects.

By motivating students and encouraging them to have a positive learning attitude, they could have a more sustainable interest in their schools subjects, which could help them to attain better grades. This could be done through sourcing educational, engaging activities that would stimulate their desire to learn.

Furthermore, since the research showed no significant correlation between school level and subject grades, it appears that students who start stronger academically, will continue to perform better academically throughout school. By motivating students to learn from a young age, they are more likely to have better academic grades from the start, which

would build a better foundation for their studies in the future. This would have long-term positive effects on their learning.

Partnership with Parents

Analysis of relationship between family demographics and academic results indicated that in families with more children, students tended to perform more poorly in English, Mathematics, and Science. Larger household sizes were also associated with poorer grades in the above subjects. It is possible that parents have greater difficulty managing a larger number of children, and thus are less able to support their children academically.

Literature suggests that there is a trade-off between number of children and their educational achievement, with achievement falling as family size increases[v]. As such, it would be beneficial to reach out to parents with more children in particular. This would enable us to find appropriate ways of supporting each parent's different needs.

Literature also reports that language acquisition begins from a young age, in the home[vi]. Many of the students surveyed communicate with their parents in their Mother Tongue, and this is likely to improve their command of the language. This can be seen in the survey results, as 23.0% of the surveyed students scored between 76 and 100 points in their Mother Tongue exams, while only 14.7%, 15.0% and 8.2% of students scored within that grade range for English, Mathematics, and Science respectively.

Interaction is one of the factors that contributes to language acquisition[vii], and

parents have a role to play in developing their children's skills.

By forming partnerships with parents, we can better understand the needs and concerns of parents, and work with them to find appropriate resources for their child's education.

Recommendations for Further Research

In further surveys, the following areas could be improved upon so as to allow for more meaningful data collection and analysis.

In order to determine the effects of family on a child's performance, information about parental involvement in a child's education will be needed. This could include whether parents help with their children's homework, or whether they send their children to schools every day.

For the section regarding other involvements, it would be ideal if there could be greater specificity in responses, such as the nature of the involvements. For the purposes of an education survey, at least recording whether or not the involvement was academic in nature would be of great help. In addition, it should also be noted down for all surveys whether the surveys were incomplete, or if the students just do not participate in other activities.

Information about students' PSLE scores for those who had already completed it would also be helpful, since it would allow for comparisons to be made with the national cohort.

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