STEM Education Development in Hong Kong and Its Impact to High School Students

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Abstract

Driven by the demand of talents from science, technology, engineering and mathematics (STEM) related fields for Hong Kong to remain internationally competitive, the Hong Kong Government has invested heavily in promoting STEM education since the last decade. This paper aims to assess its impact on local high school students, by looking at whether there were any associations between the students' interest in STEM, the number of applications for STEM-related degree programmes and the required admission scores for such programmes. This study was conducted by collecting data from 428 local high school students using a questionnaire. To see whether students will be likely to pursue in a STEM-related career, we have also examined whether there are incentives pursuing a STEM-related career in Hong Kong, by reviewing STEM career salary trends and career destinations of university graduates. Our findings indicate students tend to have positive attitudes related to STEM careers, with more than 62 % of the total respondents expressing a desire to pursue STEM subjects and 66 % would consider a career in STEM related fields, especially in engineering. We have shown that more university graduates have chosen STEM related careers, and entry level salaries from STEM-related fields are revealed to be more attractive over time, when compared to traditional business paths. This study concludes by discussing the implications of these findings for policymakers and educators, emphasizing the need to continue nurturing young talents who have strong interest in STEM subjects and careers.

Keywords: STEM education, high school students, Hong Kong

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Introduction

Increasing the Hong Kong's economic growth is now one of the key priorities, under the current Hong Kong Government. To achieve this, one should not be solely relied on by the service and financial industries. Therefore, the Government is now pushing for reindustrialization (Innovation, Technology and Industry Bureau, 2022), with the emphasis on developing smart technologies in the manufacturing industry. Smart technologies may include advanced engineering materials, nano technologies, and microelectronics. Developing such technologies would require a solid foundation in the research and development activities, as well as knowledge transfer. Meeting the future workforce demand is essential in building this foundation.

To drive the research and development activities for Hong Kong's reindustrialization, increasing demand in the workforce can be seen in industry sectors. Annual manpower survey reports from the Vocational Training Council (Vocational Training Council, 2024) summarized the estimated manpower demand in advanced manufacturing, electronic engineering, civil engineering, and information technology. As seen in Table 1, there is an increase in the workforce demand at the technologist / managerial level, and technical / supervisory level for all these industry sectors, based on the data from such reports (Vocational Training Council, 2024).

Table 1

Additional Annual Manpower Requirement in Advanced Manufacturing, Civil Engineering, Electronics and Information Technology Industry Sector

Industry Sector	Job Level	Additional Annual Manpower Requirement
Advanced Manufacturing	Technologist / Managerial	429
	Technician / Supervisory	1264
	Craftsman	None
Civil Engineering	Professional / Technologist	1549
	Technician	2686
	Skilled & Semi-skilled worker	5633
Electronics	Technologists	930
	Technician	786
	Craftsman	286
Information Technology	Managerial	125
	Technologist (R&D)	2887
	Skilled worker	2403

As well as the increase in workforce demand, the required skillset of such jobs is also evolving to cater for the need of reindustrialization. For instance, building information managers and engineers from the civil engineering sector would require skills in Internet-of-Things (IoT) or Artificial Intelligence (AI). Survey technicians would require knowledge in Virtual Reality (VR). Mechanical engineers would require skills in automation and robotics. All these required skillsets are interdisciplinary in nature. Meeting the future demand of the workforce with the required skillsets would imply a rethink in how young talents can be identified and nurtured. Furthermore, one should also consider how to encourage more young people to consider a career in STEM-related fields. Particularly, the technology and engineering sectors in Hong Kong.

Given this, the Hong Kong Government has started to introduce STEM education in 2015-16 (Education Bureau, 2015). For example, collaborate with local higher education institutes, non-governmental organizations (NGOs) and industry sectors. Through this collaboration, the young talents will be given the opportunities to apply the STEM concepts they have learnt in schools in solving real life problems. At the same time, students and teachers will have access to the expertise and advanced machinery that schools may lack when learning about and teaching the STEM related concepts. Here are some examples of the works that the Hong Kong Government has done to enhance teaching and learning activities related to STEM.

Off-School Advanced Learning Programmes

"Off-school Advanced Learning Programmes" for talented primary and secondary school students (Gifted Education Fund, 2022) offer extra learning opportunities beyond subjects covered in the normal school setting. They are designed to motivate students to learn subject matter more deeply than they normally would in their regular classes. The main objective of these programs is to develop students' critical thinking and problem-solving abilities. They cover various subjects related to STEM such as science, mathematics and engineering.

Teacher Training Programmes

Training programmes for teachers (Education Bureau, 2025) are also being currently offered with the aim of promoting education in STEM. The programs help teachers learn the knowledge, skills, and pedagogy required to teach STEM subjects and motivate their students. Teachers participate in hands-on workshops, seminars, and collaborative projects, which are supported by experts in STEM education.

Such programs are focused on new pedagogical approaches, such as hands-on activities, project-based learning, and the use of technology to make STEM subjects more appealing and relevant to students. The sessions allow teachers to stay updated on emerging trends in teaching, materials, and evaluation techniques for STEM subjects. Teachers also learn from one another through the sharing of experiences and best practices.

Not only does this collaboration allow students to develop STEM subject interests, but students will also be given the chance to develop their interests in STEM related careers. With the Government working with the industry sectors, this allows the current trends in technologies (e.g. Artificial Intelligence) to be included in the school curriculum. This ensures the young talents will be well equipped with the appropriate skillsets, and to meet the future workforce demands. Furthermore, industry sectors can also offer internships and apprenticeships to young people, giving them practical experience in skills of high demand.

Therefore, the Hong Kong Government has established a platform called “STEM Internship Scheme”.

STEM Internship Scheme

The Hong Kong Government has introduced the STEM Internship Scheme (Innovation and Technology Fund, 2025) to prepare students with real experience in science, technology, engineering, and mathematics. This scheme is designed for university students studying STEM-related courses, which will provide them with an opportunity to apply what they have studied in real-world settings.

Through this program, students are paired with well-established organizations across various sectors such as technology, engineering, finance, and healthcare for internships that typically last a few months. Students have a chance to work on appropriate projects, which enhance their industry knowledge.

With STEM education now being integrated into the Hong Kong’s education landscape, the current perceptions of STEM careers among local high school students must be closely monitored. If they have more positive perceptions towards STEM-related subjects and careers, then they will be more likely to pursue in future careers related to STEM. The goal of meeting future workforce demand will become also more likely. Besides the current perceptions of the local high school students, we also need to investigate how the role of higher education institutes has evolved over time, in training young talents to meet the future workforce demand.

Research Questions

Even if the future young talents have an interest in STEM related careers and are well equipped for future workforce demand, they will not pursue in a STEM related career, if there are no incentives to do so. Therefore, examine whether there are incentives in having a STEM-related career in Hong Kong is also vital. Overall, this paper aims to answer the following research questions (RQ):

RQ1: What are the current perceptions related to STEM subjects and careers among local high school students in Hong Kong?

RQ2: What factors may influence their perceptions related to engineering and related careers?

RQ3: What is the current trend in applying for undergraduate STEM-related degree programmes in Hong Kong?

RQ4: Are there any incentives pursuing a STEM-related career in Hong Kong?

Answering those questions can help educators and policy makers to devise long term strategies to nurture young talents into STEM related careers. For example, identifying factors that influence students’ STEM perception allows educators to design specific education programmes, with the aim to enhance students’ interests in STEM related subjects and careers. Policy makers can use this paper’s findings to see how to support and attract young talents into STEM related careers in Hong Kong.

Perception and Career Choice

The Social Cognitive Career Theory (SCCT) is a theory which explains how individuals develop career interests, make career decisions, and achieve career success (Lent et al., 1994). SCCT blends social cognitive theory concepts, centered on concepts of self-efficacy, outcome expectations, and personal goals, to explain how individuals develop their careers. The theory centers on the interaction among personal variables like self-efficacy, environmental factors, and actual behaviors in shaping career paths.

Self-Efficacy

It describes an individual's belief in their ability to do things and achieve desired goals effectively. Career choices are usually made based on an individual's belief in performing well in specific careers and their commitment to pursue them. For example, students who believe in their abilities in science would likely choose careers in science.

Personal Goals

They are clear-cut targets that help to direct one's decisions and plans. They can be short-term, such as completing a degree at a university, or long-term, such as being a leader at a large company. Having goals can help one to remain motivated and focused, overcome obstacles and achieve what one is set out to do.

Outcome Expectations

When choosing a career, people think about what they will benefit from it. For example, being satisfied in their work, having a good income, or gaining respect. If they think these good things will happen, they are likely to pursue that career. But if they think things won't go as planned, they might not pursue that career.

Career and Subject Interest

Under the SCCT model, a combination of factors related to self-efficacy, personal goals and outcome expectation can have an impact on people's general interest in academic subjects and careers.

Impact of STEM Activities on STEM Perception

Students who participate in extracurricular activities in STEM are more likely to be engaged in a profession related to STEM (Baran et al., 2016). The aim of such programs is to provide students with the opportunities to engage in different areas of STEM, that would not be available in the normal classroom settings. The philosophy of STEM education is to combine science, technology, engineering, and mathematics into one curriculum rather than teaching them separately. Any hands-on experiences that complement the theoretical knowledge being taught in normal classrooms can also lead to the development of transferable skills needed in all job sectors.

Methodology

To gauge the current perceptions related to STEM subjects among local secondary students (i.e. answering RQ1), we have compared the number of students entered Hong Kong Diploma of Secondary Education (HKDSE) examination (Hong Kong Examinations and Assessment Authority, 2012) in STEM-related subjects such as physics and information communication technology (ICT) with a non-STEM related subject - Business, Accounting and Financial Studies. If more students have entered the examination in a particular subject, we then say the students have more interest in that subject.

We have also conducted survey research with the aim of strengthening our studies, and to gauge the current perceptions related to STEM careers. For the survey design, we have asked 16 Likert scale questions related to self-efficacy and career aspirations of the participants in the areas of science, technology, engineering, and mathematics. The questions were devised by Kier et al. (2013). There were 426 participants that took part in the survey. The participants were asked to complete the survey, after having participated in STEM themed workshops organized by the Hong Kong University of Science and Technology (HKUST). From the responses of the survey, we calculated a STEM interest score from 0 (No interest) to 5 (Very interested) and then we plotted the STEM interest score over time, to see whether we have observe any significant trends relating to local high school students' interest in STEM.

For answering RQ2, we have performed a correlation study, to see whether STEM subject and career interest among local Secondary 4 to 6 students are related to frequency of participating in STEM related activities at HKUST and the number of STEM related competitions that they have participated in. The reason that we have chosen the senior year high school students is because they have a better idea of STEM education's philosophy, when compared to more junior years (Secondary 1 to 3). Spearman correlation coefficient was computed for each survey item, and hypothesis testing was performed to see whether such correlations were statistically significant. We have set the threshold of p-value to be less than 0.01 for the rejection of the null hypothesis. For assessing the strength of the correlation, we have used the descriptor from Dancey and Reidy (2004) as shown in Table 2 below. Note the descriptors apply to the relationships that are positively and negatively correlated.

Table 2
Interpretation of the Spearman Coefficient

Spearman Coefficient ρ	Interpretation of the correlation
≥ 0.70	Very strong relationship
0.40 – 0.69	Strong relationship
0.30 – 0.39	Moderate relationship
0.20 – 0.29	Weak relationship
0.01 – 0.19	No or negligible relationship

To assess how the higher education institutes have adapted to training young talents (i.e. answering RQ3), we have looked at whether there is a relationship between the number of admissions into STEM-related degree programmes and admission entry scores to get into such programmes over time. We have used a list provided by the Hong Kong Government to determine which undergraduate degree programmes are classified as being STEM-related (Immigration Department, 2025).

The number of admission applications and the admission scores for enrolling into STEM related programmes were obtained from the Joint University Admission Systems in Hong Kong. Further descriptions on the organization can be found on its website (JUPAS, 2024). Admission scores can be used to gauge the demand of high school students getting into STEM related programmes, with 35 points being the maximum that can be achieved. Furthermore, we have also compared the number of admissions into STEM-related degree programmes with that of the non-STEM programmes over time.

To examine whether there are incentives pursuing a STEM-related career in Hong Kong (i.e. answering RQ4), we have compared the number of graduates going into STEM-related career, with that of non-STEM related career, using the data from the Hong Kong University Grant Council (University Grant Council, 2023). Apart from looking at the career destinations of graduates, the monthly salary trend for STEM related careers was also compared to that of non-STEM related careers. The data related to monthly trend was collected from annual salary report by a well-known job-hunting website in Hong Kong named "Jobsdb" (Jobsdb, 2024). We presume that the higher the monthly salary, the more attractive the career is for the graduates.

Results and Discussion

RQ1: What are the current perceptions related to STEM subjects and careers among local high school students in Hong Kong?

The survey questions related to self-efficacy in science, mathematics, technology and engineering are outlined in Table 3, and the responses related to such questions are summarized in Figure 1.

Table 3
Survey Questions Related to Self-Efficacy

S1	I am able to get a good grade in my science class.
S2	I am able to complete my science homework.
M1	I am able to get a good grade in my math class.
M2	I am able to complete my math homework.
T1	I am able to do well in activities that involve technology.
T2	I am able to learn new technologies.
E1	I am able to do well in activities that involve engineering.
E2	I am able to complete activities that involve engineering.

More than 63% of the respondents thought that they would get good results in STEM discipline. 72% of them thought they would get good grades in science, 74% thought they would get good grades in mathematics, 68% thought they would perform well in activities involving technology, and 64% thought they would perform well in activities involving engineering.

More than 67% of the respondents thought that they would be able to complete activities related to STEM discipline. 87% thought they would complete activities in science, 87% thought they would complete activities related to mathematics, 76% thought they would complete activities involving technology, and 68% thought they would complete activities involving engineering.

The survey questions related to personal goals in science, mathematics, technology and engineering are outlined in Table 4, and the responses related to such questions are summarized in Figure 2. More than 62% of the respondents are planning to use STEM related concepts in their future career, in which 72% of them planned to use scientific concepts in their future career, 71 % planned to use mathematical concepts, 63% planned to use new technologies, and 59% planned to use engineering concepts.

As for the students' motivation, more than 66% of the respondents stated that they will work hard in STEM related activities, in which at least 85% of them stated that they will work hard in activities related to science and mathematics, 67% stated they will work hard in technology related activities, and 71% stated they will work hard in activities related to engineering.

Figure 1

Survey Results Related to Self-Efficacy

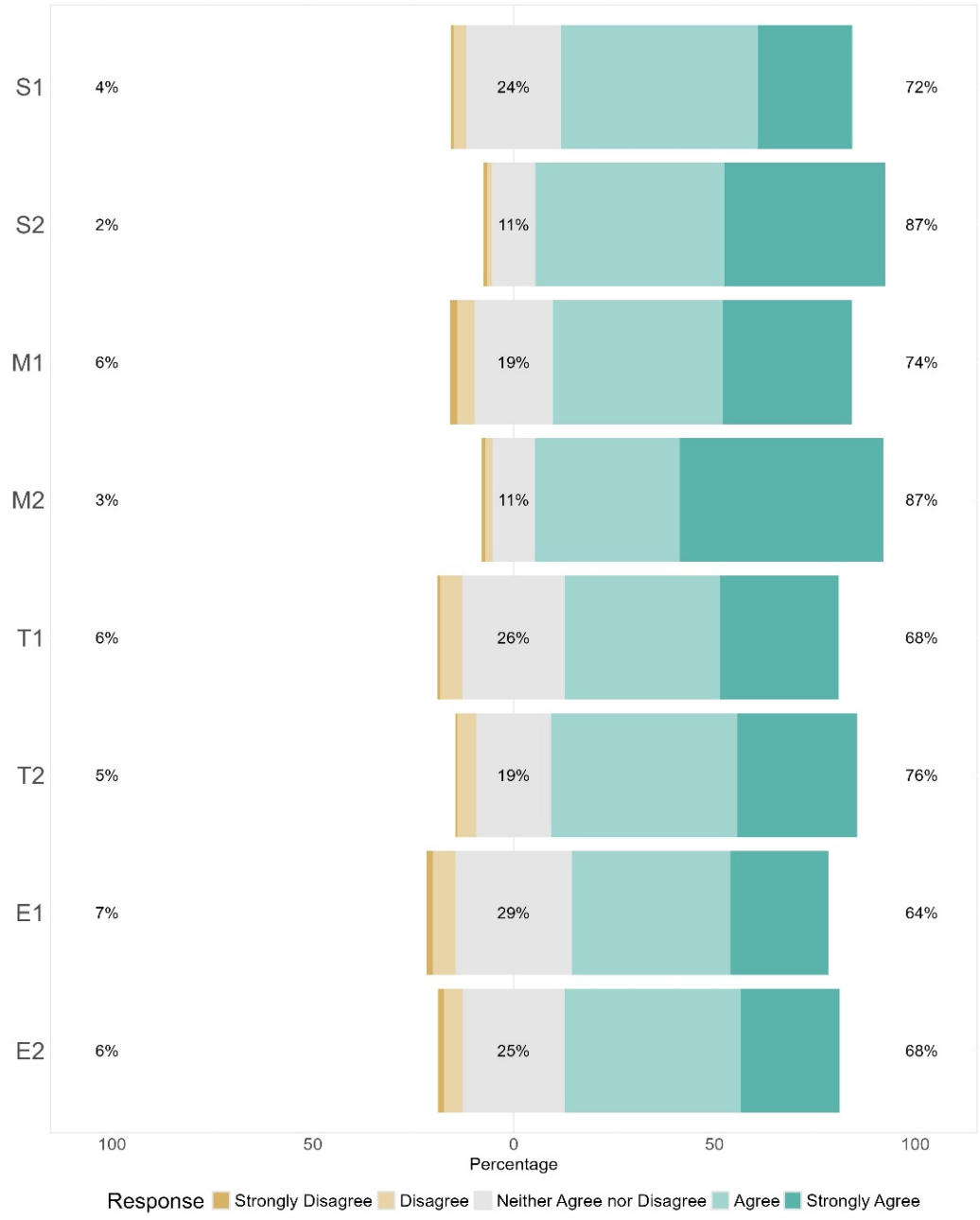


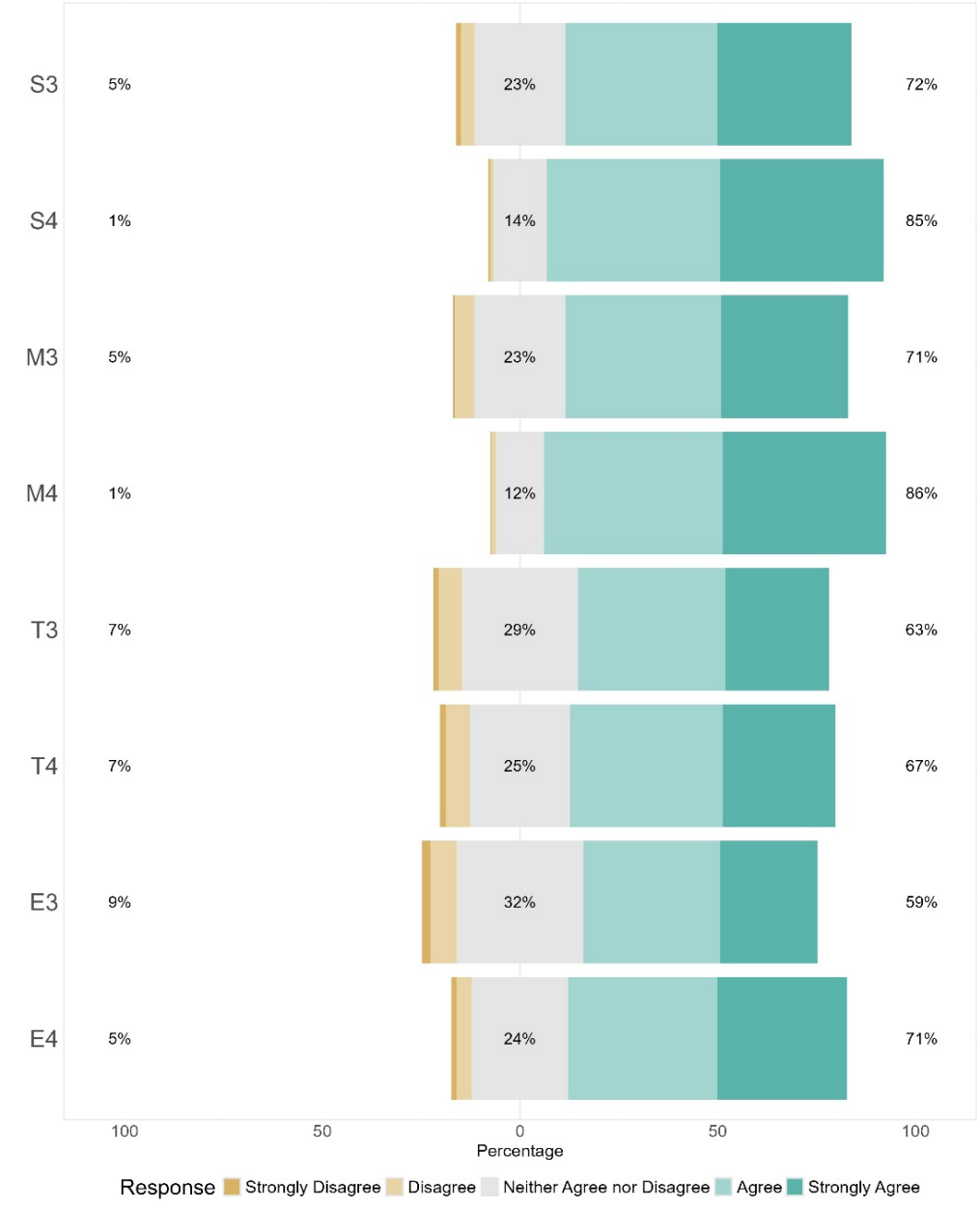
Table 4

Survey Questions Related to Personal Goal

S3	I plan to use science in my future career.
S4	I will work hard in my science classes.
M3	I plan to use mathematics in my future career.
M4	I will work hard in my mathematics classes.
T3	I plan to use technology in my future career.
T4	I will learn about new technologies that will help me with school.
E3	I plan to use engineering in my future career.
E4	I will work hard on activities at school that involve engineering.

Figure 2

Survey Results Related to Personal Goal



The survey questions related to career and subject interest in science, mathematics, technology and engineering are outlined in Table 5, and the responses related to such questions are summarized in Figure 3.

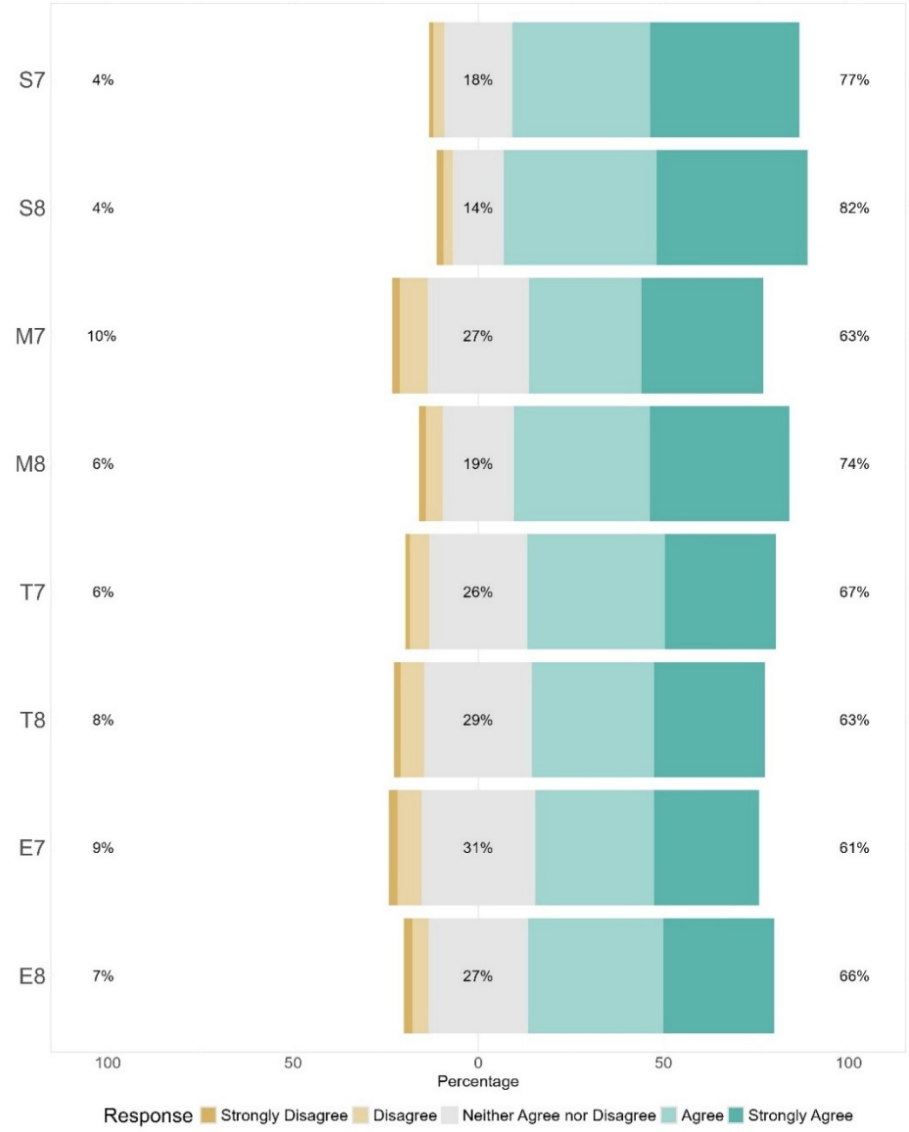
Table 5

Survey Questions Related to Career and Subject Interest

S7	I am interested in careers that use science.
S8	I like my science class.
M7	I am interested in careers that use mathematics.
M8	I like my mathematics class.
T7	I like to use technology for class work.
T8	I am interested in careers that use technology.
E7	I am interested in careers that involve engineering.
E8	I like activities that involve engineering.

Figure 3

Survey Results Related to Career and Subject Interest



More than 60% of the respondents were interested in STEM-related careers. 77% of them being interested in careers related to science. 63% being interested in careers related to mathematics, 63% being interested in careers related to technology, and 66% being interested in careers related to engineering.

As for the subject interest, more than 62% of the respondents were interested in STEM-related subjects. 82% of them being interested in science as an academic subject. 63% being interested in mathematics, 63% are interested in technology, and 66% being interested in engineering.

The survey questions related to outcome expectations in science, mathematics, technology and engineering are outlined in Table 6, and the responses related to such questions are summarized in Figure 4. At least 65% of the respondents thought that if they do well in STEM related classes, it will help them in their future career. 81% of the respondents thought doing well in science classes will help them in their career. 79% for mathematics, 71% for technology and 65% for engineering.

Table 6

Survey Questions Related to Outcome Expectations

S5	If I do well in science classes, it will help me in my future career.
S6	My parents would like it if I choose a science career.
M5	If I do well in mathematics classes, it will help me in my future career.
M6	My parents would like it if I choose a mathematics career.
T5	If I learn a lot about technology, I will be able to do lots of different types of careers.
T6	My parents would like it if I choose a technology career.
E5	If I learn a lot about engineering, I will be able to do lots of different types of careers.
E6	My parents would like it, if I choose an engineering career.

At least 54% of the respondents agreed that their parents would like it if they chose a STEM-related career. 65% being a career related to science, 61% being a career related to mathematics, 55% being a career related to technology and 54% being a career related to engineering.

STEM Interest Over Time

Figure 5 shows the change in the level of interest in STEM among local high school students in the specified timeframe. The STEM interest scores are plotted in blue dots and the trendline is plotted as a dotted line. The COVID pandemic period is also highlighted in grey.

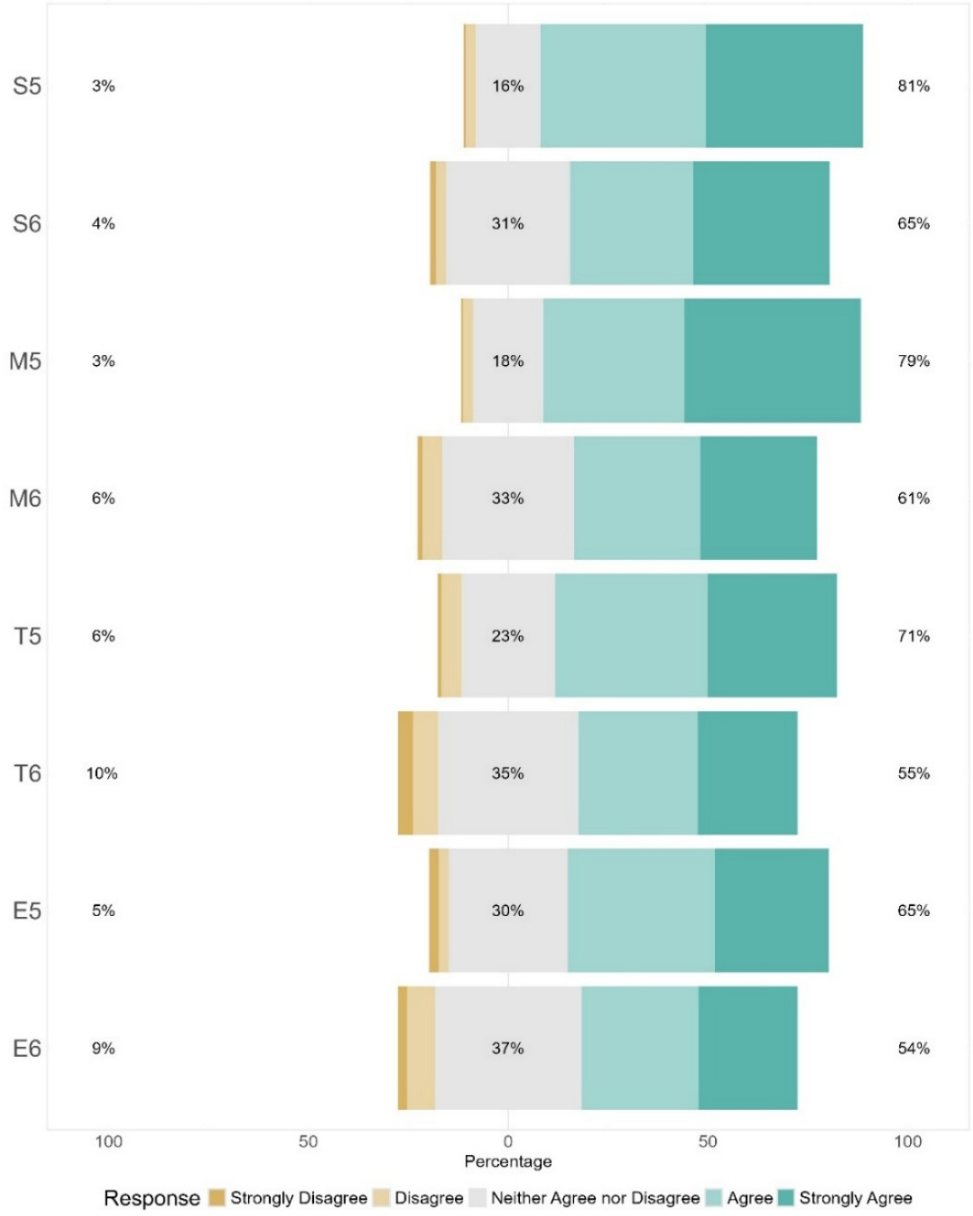
The STEM interest amongst the local high school students was at the lowest during the COVID pandemic period, but the level of interest has changed to an upward trend after such a period has ended. The low interest in STEM education during the COVID pandemic may be due to the two main reasons: the shift in the students' mindsets and access to resources during such period.

The pandemic can cause stress and anxiety amongst students, in which these can affect students' motivation and focus related to STEM learning tasks. Change in the daily routine and the reduction in support from teachers and peers can make one maintain interest in

STEM difficult. Students may also place the future career prospects in STEM at a lower priority, as they have more immediate concerns to deal with. Restrictions in accessing STEM learning resources may lead to insufficient practical learning experiences. This in turn can cause a decrease in motivation among students.

Figure 4

Survey Results Related to Outcome Expectations



Overall, we can see that most respondents (i.e. local high school students in Hong Kong) to our survey are generally have a positive perception towards STEM subject and careers. They are willing to study hard towards STEM-related subjects and have a positive attitude towards having a career related to STEM discipline. They generally believe that learning about STEM in their classes to achieve their career goals in STEM. From the survey, we can also see that parents' perception of STEM education.

Figure 5
STEM Interest Trend of Local High School Students

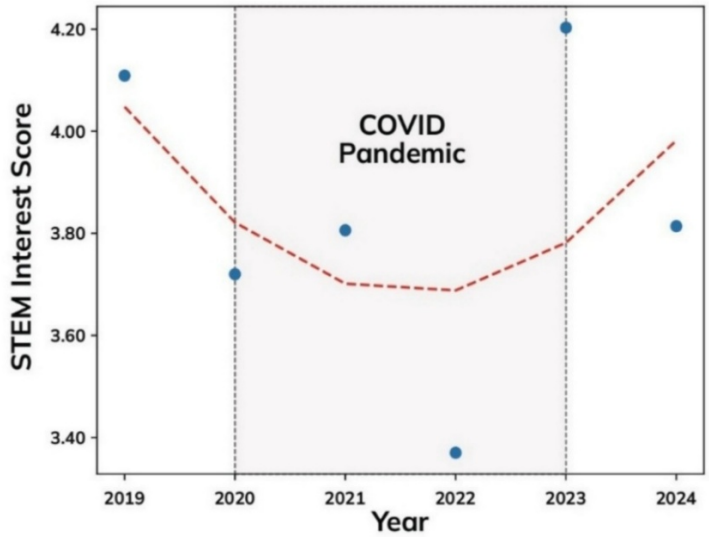
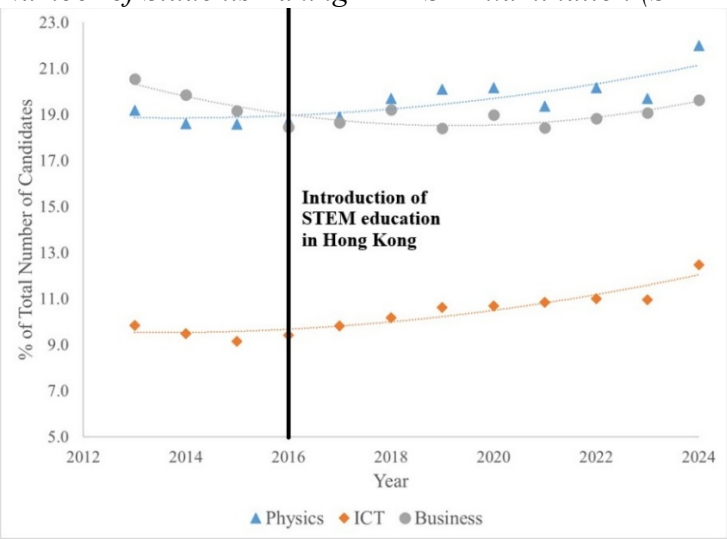


Figure 6 shows the percentage of the total number of candidates taking physics, information technology and business management as part of their Hong Kong Diploma of Secondary Education (HKDSE) examination.

Figure 6
Number of Students Taking HKDSE Examination (STEM Subjects vs Business)



Before the introduction of STEM education, the number of students taking STEM related subjects such as physics and information and communications technology (ICT) has been in decline (An average of 2% decrease in both subjects). Only after the introduction of STEM education, an upward trend is observed for both physics and ICT. The percentage of the total number of candidates taking physics has increased from 18% to 22% in the overall timeframe under study. Meanwhile, a downward trend is observed for business management. This is where the percentage of the total number of candidates decreased from 21% to 19%.

By comparing the trend for STEM-related subjects with that of business management, we can see that the interest in STEM-related subjects has increased since the introduction of STEM education by the Government, whereas interest in business subjects has decreased. This

demonstrates that the Government's initiative in promoting STEM education has played a role in pushing for this trend.

RQ2: What factors may influence their perceptions related to engineering and related careers?

We have investigated the possible correlation between the number of STEM-related activities that students have participated in and the level of interest in engineering. The results of the correlation study are shown in Table 7. This is where n is the number of respondents, M is the mean Likert score, SD is the standard deviation and the last column shows the Spearman correlation coefficient for each survey item.

Table 7

Correlation Between the Number of STEM-Related Activities and the Survey Items E1, E2, E3, E4, E5, E6, E7, E8

Variable	*n*	*M*	*SD*	Number of STEM related activities participated at HKUST
E1: I am able to do well in activities that involve engineering.	95	3.52	1.03	.373**
E2: I am able to complete activities that involve engineering.	94	3.50	.981	.305**
E3: I plan to use engineering in my future career.	95	3.51	1.10	.308**
E4: I will work hard on activities at school that involve engineering.	94	3.81	1.05	.320**
E5: If I learn a lot about engineering, I will be able to do lots of different types of careers.	96	3.66	1.07	.306**
E6: My parents would like it, if I choose an engineering career.	96	3.51	1.04	.204*
E7: I am interested in careers that involve engineering.	95	3.56	1.12	.282**
E8: I like activities that involve engineering.	95	3.59	1.13	.259*

*$p < .05$. **$p < .01$.

The results suggest that the number of STEM-related activities that students have participated at the Hong Kong University of Science and Technology (HKUST) is moderately associated with the level of self-efficacy (i.e. E1 and E2) and the level of interest in engineering careers (i.e. E3 and E5). This implies either STEM-related activities organized by HKUST have managed to attract students with an interest in engineering careers, or such activities have managed to change students' perception in engineering.

In addition to the number of STEM-related activities, we also have looked at a possible correlation between the number of STEM-related competitions that students have participated in and the level of interest in engineering. The results of the correlation study are shown in Table 8. This is where n is the number of respondents, M is the mean Likert score, SD is the

standard deviation and the last column shows the Spearman correlation coefficient for each survey item.

Table 8

Correlation Between the Number of STEM-Related Competitions and the Survey Items E1, E2, E3, E4, E5, E6, E7, E8

Variable	*n*	*M*	*SD*	Number of STEM related competitions participated
E1: I am able to do well in activities that involve engineering.	95	3.52	1.03	.366**
E2: I am able to complete activities that involve engineering.	94	3.50	.981	.354**
E3: I plan to use engineering in my future career.	95	3.51	1.10	.283**
E4: I will work hard on activities at school that involve engineering.	94	3.81	1.05	.279**
E5: If I learn a lot about engineering, I will be able to do lots of different types of careers.	96	3.66	1.07	.261*
E6: My parents would like it, if I choose an engineering career.	96	3.51	1.04	.272**
E7: I am interested in careers that involve engineering.	95	3.56	1.12	.320**
E8: I like activities that involve engineering.	95	3.59	1.13	.269**

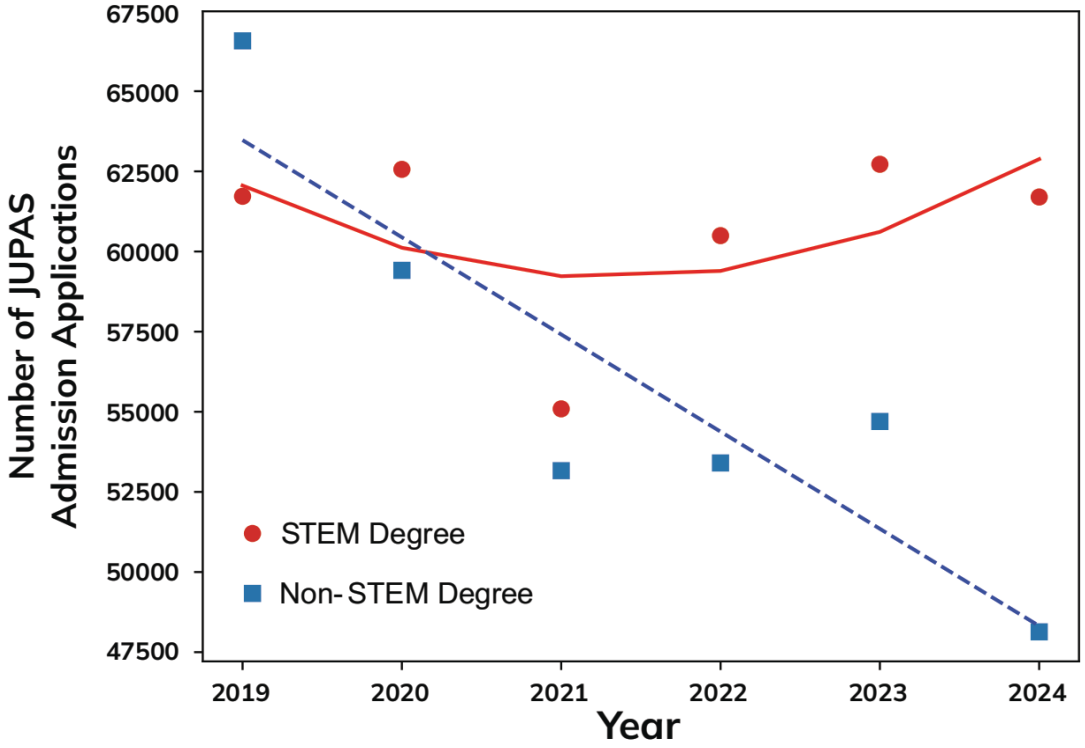
*$p < .05$. **$p < .01$.

The results suggest that the number of STEM-related competitions that students have participated in is moderately associated with self-efficacy in engineering (i.e. E1 and E2), also interest in engineering careers (i.e. E7). This may mean that students with high self-efficacy are the ones willing to participate in multiple STEM-related competitions, alternatively this may also mean participating in more competitions will mean an increase of students' self-efficacy.

RQ3: What is the current trend in applying for undergraduate STEM-related degree programmes in Hong Kong?

Figure 7 shows the number of JUPAS admission applications over a period as specified in such figure. The red circled markers are for the STEM degree admission applications, and the blue square markers are for non-STEM degree admission applications.

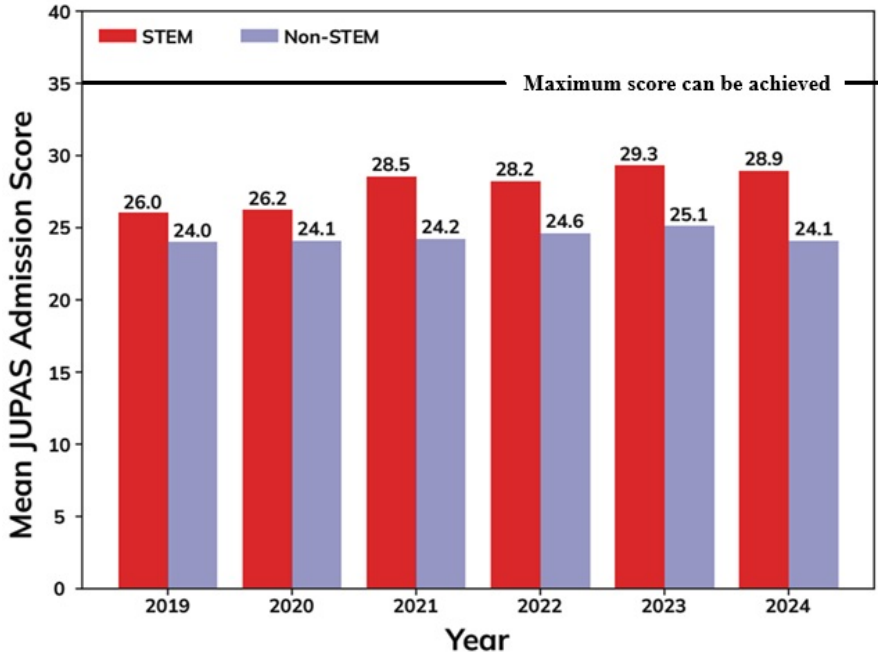
Figure 7
Comparison of the Number of JUPAS Admissions Applications (STEM vs Non-STEM)



In the beginning, 7% more JUPAS admission applications were received for non-STEM degree programmes, when compared to STEM-related degree programmes. However, the number of applications received for STEM degree programmes overtook that of non-STEM degree programmes in the next year. The difference in the number of applications for STEM degree programmes and non-STEM degree programmes has gradually increased since then. At the end of the specified period in the figure, 27% more applications were received for STEM degree programmes, when compared to that of non-STEM degree programmes. Furthermore, number of students applying for non-STEM related degree programmes has been in decline by 30% in the overall timeframe as specified in the figure. This implies that local high school students did see the appeal in pursuing further studies related to STEM related subjects.

Apart from looking at the number of JUPAS admission applications received for STEM related degree and non-STEM related degree over time, the change in JUPAS admission score over time was also studied for STEM related degree and non-STEM related degree. The results are shown in Figure 8.

Figure 8
Comparison of JUPAS Admission Score (STEM vs Non-STEM)



One can see the average JUPAS admission score has increased from 26.0 points in the year to 28.9 points for the entire period under study, for STEM related degree programmes. In contrast, the average JUPAS admission score remains the same for the same period, in the case for non-STEM-related degree programmes. The difference in the admission score between STEM and non-STEM degree programmes is getting larger over time during the entire period under study. Higher education institutes want to attract brighter students into STEM-related degree programmes, compared to non-STEM counterpart.

RQ4: Are there any incentives pursuing a STEM-related career in Hong Kong?

To assess whether there are incentives pursuing a STEM-related career in Hong Kong, we have compared monthly salary for an assistant engineer and that of an entry position for non-STEM job sector. Although the monthly salary is shown to be increasing for the two entry level positions, the monthly salary for an assistant engineer has risen more rapidly for the entire period under study. Its monthly salary has increased from HKD 19398 to HKD 26271 over those four years, as shown in Figure 9.

In addition to comparing monthly salaries, we have looked at the change in the number of university graduates going into the STEM job sector, as shown in Figure 10. The percentage of respondents going into the STEM job sector has increased from 34% to 40% during the entire period under study. Meanwhile, the percentage of respondents going into the business sector has decreased from 45% to 36% in the same period. We have also observed that more university graduates have gone into the business sector compared to that of the STEM job sector, before STEM education was introduced. Only two years after STEM education was introduced by the Government, we saw the number of university graduates going into the STEM job sector overtook that of the business sector. By looking at the monthly salary trends and career destination of university graduates over time, having a STEM related career in Hong Kong is getting more attractive.

Figure 9

Comparison of Monthly Salary for Entry Level Positions in STEM (Assistant Engineer) and Non-STEM Job Sector

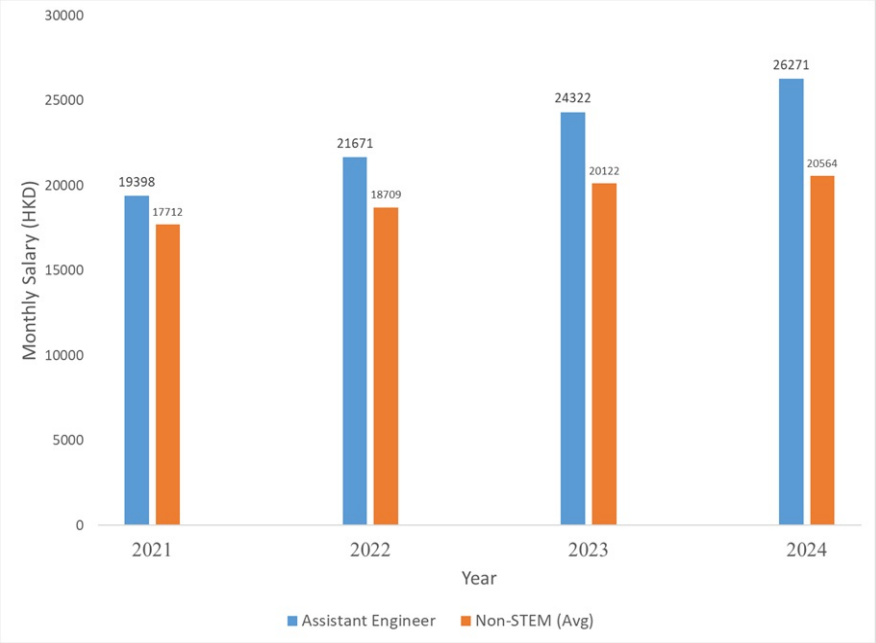
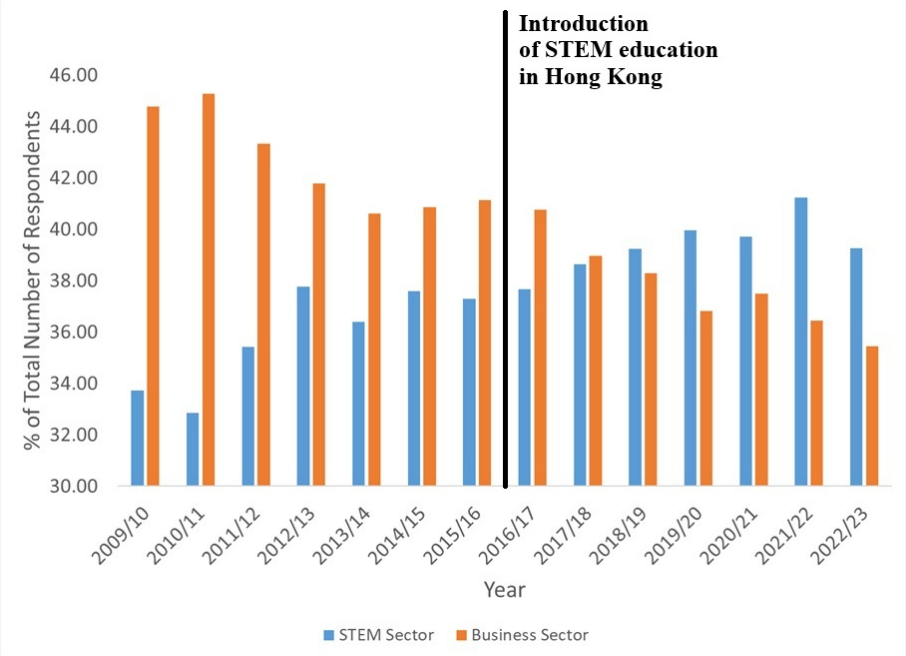


Figure 10

Comparison of Career Destination of University Graduates in Hong Kong (STEM vs Business)



Conclusion

Assessing the current landscape of STEM education amongst local high school students in Hong Kong is vital to meet the future manpower demands for Hong Kong's reindustrialization. To gain insight into students' attitudes towards STEM and their future career prospects in this job sector, we examined their perceptions of STEM subjects and career interests, identified factors that may influence with such interests, reviewed admission

requirements for STEM-related programs at higher education institutions, and evaluated the incentives of pursuing a STEM career in Hong Kong.

Our study revealed that local secondary school students generally have a positive attitude towards STEM-related careers and subjects. Over 62% of survey respondents expressed a desire to pursue further studies in STEM fields, while 66% indicated interest in a STEM-related career, particularly in engineering. The level of interest in STEM subjects and careers is positively correlated with the frequency of participation in STEM-related activities organized by HKUST.

The number of JUPAS admission applications for STEM degree programs appears to reflect local high school students' growing interest in STEM over time. An increasing number of students are opting to specialize in STEM subjects, and the gap in admission scores between STEM and non-STEM degree programs has widened over the same period. Higher education institutions are actively seeking to attract top students to STEM programs compared to their non-STEM counterparts.

In Hong Kong, there are more incentives to pursue careers in STEM fields than in business. Particularly, a growing number of university graduates are choosing STEM-related careers, as well as the entry-level salaries in these fields have become increasingly attractive over time.

Overall, this study supports the Government’s initiatives in continuing to nurture local high school students who have strong interest in STEM-related careers and subjects.

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Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

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