Public Opinion Programme
The University of Hong Kong
The Hong Kong Jockey Club Charities Trust

Jointly conducted

Parent Perception Survey on Computational Thinking 2018

Survey Report

Compiled by

CHUNG Ting-Yiu Robert, PANG Ka-Lai Karie, LEE Wai-Kin Frank, CHAN Wai-Man Joyce and CHOW Ka-Yan Jasmine

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I. Highlights of Research Findings

Overall analysis

1.1 The target population of this "Parent Perception Survey on Computational Thinking 2018" was Cantonese-speaking parents whose child / children was / were studying in kindergarten, primary or secondary school. Telephone interviews were conducted during the period of 23 August to 7 September, 2018. A total of 1,003 qualified respondents were successfully interviewed.

1.2 In terms of seven different learning areas, results found that respondents believed that learning "English" was the most important for children's development, followed by learning "Chinese" and "Mathematics and Technology", with over 90% each thought they were important. "General Studies / Liberal Studies" and "Physical Education" formed the next tier, then "History and Culture" and "Arts". Besides, among those four areas which were repeated from last year, the importance scores of "Mathematics and Technology" and "Physical Education" have increased significantly over the year past while those of "History and Culture" and "Arts" remained more or less the same (Summary Table 1).

Summary Table 1 The importance level of seven learning areas for children's development (0-10 marks)

	2017				2018			
	Important (6-10 marks)	Half-half (5 marks)	Not important (0-4 marks)	Mean score	Important (6-10 marks)	Half-half (5 marks)	Not important (0-4 marks)	Mean score
English	--	--	--	--	97.0%	2.4%	0.5%	**8.9 marks**
Chinese	--	--	--	--	94.3%	4.9%	0.7%	8.6 marks
Mathematics and Technology	91.5%	6.2%	1.7%	8.0 marks	92.2%	5.7%	1.4%	8.3 marks**
General Studies / Liberal Studies	--	--	--	--	86.5%	10.4%	2.6%	7.7 marks
Physical Education	80.8%	15.7%	3.4%	7.2 marks	85.0%*	12.1%*	2.7%	7.4 marks*
History and Culture	74.6%	18.0%	7.1%	6.9 marks	76.7%	17.4%	5.6%	7.0 marks
Arts	70.5%	23.1%	6.0%	6.6 marks	72.8%	20.7%	6.0%	6.7 marks

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*
^ The percentages of "don't know / hard to say" are excluded in the table.

1.3 As for the awareness on STEM education, coding, computational thinking and digital creativity, the latest results showed that two-thirds of the parents interviewed had heard of "coding", half had heard of "digital creativity" and "STEM education" while they were relatively unfamiliar with "computational thinking", with only one-third heard of it before the interview. However, except "digital creativity", the awareness of the remaining three items have increased significantly as compared with last year's. Among them, the awareness for "STEM education" has registered the biggest increment (Summary Table 2).

Summary Table 2 The awareness of STEM education, coding, computational thinking and digital creativity

	2017				2018			
	Yes	*Heard of it before summer vacation in 2016*	*Heard of it after summer vacation in 2016*	No	Yes	*Heard of it before summer vacation in 2016*	*Heard of it after summer vacation in 2016*	No
Coding	61.1%	*37.9%*	*13.2%*	38.4%	66.7%**	*32.9%**	*22.5%***	32.8%**
Digital creativity	51.1%	*29.4%*	*13.7%*	48.6%	51.3%	*22.3%***	*18.6%***	48.2%
STEM education	37.0%	*15.6%*	*16.4%*	62.5%	49.8%**	*19.2%**	*23.1%***	49.6%**
Computational thinking	29.9%	*17.5%*	*7.8%*	69.3%	36.3%**	*16.4%*	*12.4%***	62.9%**

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*
^ The percentages of "yes, but can't remember when", "yes, but refuse to answer when" and "don't know / hard to say" are excluded in the table.

1.4 Meanwhile, one-tenth of the respondents expressed that they had heard of the "CoolThink@JC" project which was launched in 2016 while the remaining 90% had not. The results were comparable to last year's.

1.5 When asked if the respondents supported The Hong Kong Jockey Club Charities Trust to continue promoting computational thinking, nearly 85% showed "support" while only very few respondents expressed "half-half" or "not support". Nearly one-tenth answered "did not know / hard to say".

1.6 Besides, nearly one-fifth of the respondents said that their child was learning computational thinking via coding, comparable to the results of last year. Meanwhile, two-thirds agreed to incorporating education on computational thinking into the regular curriculum of secondary and primary schools, representing a significant increase from last year. Their main supporting reasons were to let their children "learn one more thing / technique", "follow social trend" and "learn a technique which was necessary in the digital era". On the contrary, 15% disagreed to incorporating education on

computational thinking into the regular curriculum of schools, but this figure had dropped significantly compared to last year's. The main reasons to object were because they believed "children already had too much to learn", "primary school students were too young" and "students were under too much pressure".

Analysis of Statements with <u>Positive Description</u> on Computational Thinking

1.7 No matter whether the respondents had heard of the "CoolThink@JC" project, interviewers read out the following introduction, "Computational thinking education aimed at inspiring students in digital creativity and problem-solving in daily life, as well as coping with innovation and challenges in future".

1.8 After the brief introduction, more than 70% of the respondents this year agreed that "learning computational thinking via coding could help their children to enter different industries in the future"; two-thirds agreed "learning computational thinking via coding could help their children to enhance problem-solving skills and creativity" while nearly half agreed "learning coding was as important as learning English". Compared with last year's findings, the mean scores of all three statements registerd significant increases, reflecting an increased recognition of the advantages of learning computational thinking via coding from the local parents this year (Summary Table 3).

Summary Table 3 The level of agreement towards the statements of computational thinking (0-10 marks) – Positive sentences

	2017				2018			
	Agree (6-10 marks)	Half-half (5 marks)	Disagree (0-4 marks)	Mean score	Agree (6-10 marks)	Half-half (5 marks)	Disagree (0-4 marks)	Mean score
Learning computational thinking via coding can help my children to enter different industries in the future	68.9%	20.5%	9.5%	6.6 marks	**71.4%**	18.1%	8.5%	**6.9 marks ****
Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity	64.7%	22.3%	10.2%	6.4 marks	68.0%	20.6%	8.0%	6.8 marks **
Learning coding is as important as learning English	43.6%	28.2%	27.7%	5.5 marks	49.8%**	26.6%	23.3%*	5.8 marks **

*** Statistically significantly at p<0.01 level*

^ The percentages of "don't know / hard to say" are excluded in the table.

1.9 Further analyses were performed to test for any significant discrepancies between the awareness of five items, namely the "STEM education", "coding", "computational thinking", "digital creativity" and the "CoolThink@JC" project with six statements related to the computational thinking.

1.10 For the three positive statements towards computational thinking, those respondents who had not heard of "STEM education" and had heard of the "CoolThink@JC" project tended to agree that "learning computational thinking via coding could help their children to enter different industries in the future". Those who had heard of "computational thinking" and the "CoolThink@JC" project tended to agree that "learning computational thinking via coding could help their children to enhance problem-solving skills and creativity". Moreover, those who had not heard of "STEM education", "coding" and had heard of the "CoolThink@JC" project were more likely to agree "learning coding was as important as learning English" (Summary Table 4). In other words, parents who have heard of "CoolThink@JC" tended to have more positive assessment towards computational thinking in general.

Summary Table 4 In-depth analysis –The level of agreement towards the statements of computational thinking (Mean scores) – Positive statements

	STEM education		Coding		Computational thinking		Digital creativity		"CoolThink@JC" project	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Learning computational thinking via coding can help my children to enter different industries in the future	6.68*	7.04*	6.87	6.84	6.99	6.78	6.93	6.79	7.59**	6.77**
Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity	6.71	6.83	6.85	6.61	6.98*	6.64*	6.85	6.69	7.43**	6.68**
Learning coding is as important as learning English	5.20**	6.48**	5.64**	6.24**	5.89	5.80	5.70	5.98	6.98**	5.69**

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Analysis of Statements with Negative Description on Computational Thinking

1.11 As for other three negative statements towards computational thinking, 45% of the respondents were "worried that computational thinking would lead to the excessive use of mobile phones and computers by their children" while the opinions on "learning coding meant becoming programmers in the future" were split, with 30% of the respondents each agreed and disagreed. Besides, more than one-fifth believed "computational thinking education was not conducive to the future development of their children" while two-fifths disagreed (i.e. believed it was conductive). The results concerning the first two statements were highly comparable with last year's whilst the wordings of third sentence were slightly revised this year, thus direct comparison is not recommended (Summary Table 5).

Summary Table 5 The level of agreement towards the statements of computational thinking (0-10 marks) – Negative statements

	2017				2018			
	Agree (6-10 marks)	Half-half (5 marks)	Disagree (0-4 marks)	Mean score	Agree (6-10 marks)	Half-half (5 marks)	Disagree (0-4 marks)	Mean score
I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children	44.2%	27.8%	26.5%	5.5 marks	44.0%	25.7%	28.2%	5.4 marks
Learning coding means becoming programmers in the future	34.6%	31.6%	33.2%	4.9 marks	34.8%	31.3%	32.8%	4.9 marks
Computational thinking education is not conducive to the future development of my children	--	--	--	--	23.4%	33.5%	40.2%	4.4 marks

^ *The percentages of "don't know / hard to say" are excluded in the table.*

1.12 The results of futher analyses showed that, those respondents who had not heard of "STEM education" and "coding" tended to fear that "computational thinking would lead to the excessive use of mobile phones and computers by their children". Those who had not heard of "STEM education" and "coding" and had heard of the "CoolThink@JC" project tended to agree "learning coding meant becoming programmers in the future". Moreover, those who had not heard of "coding", "computational thinking" and "digital creativity" were more likely to believe "computational thinking education was not conducive to the future development of their children" (Summary Table 6).

Summary Table 6 In-depth analysis –The level of agreement towards the statements of computational thinking (Mean score) – Negative statements

	STEM education		Coding		Computational thinking		Digital creativity		"CoolThink@JC" project	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children	5.11**	5.76**	5.26**	5.84**	5.42	5.45	5.30	5.59	5.52	5.43
Learning coding means becoming programmers in the future	4.23**	5.67**	4.67**	5.51**	4.86	4.98	4.78	5.11	5.54*	4.87*
Computational thinking education is not conducive to the future development of my children	4.34	4.46	4.26*	4.70*	4.04**	4.61**	4.23*	4.58*	4.06	4.45

** Statistically significantly at p<0.05 level*

*** Statistically significantly at p<0.01 level*

II. Demographics In-depth Analysis

In-depth analyses were also conducted to test for any significant discrepancies among different groups with respect to respondents' demographic characteristics. The results listed below only include those which were tested to be statistically significant for reference purpose.

By respondents' education level

2.1 Crosstabs analysis showed that the higher the education level of the respondents, the higher their awareness on "STEM education", "coding" and "digital creativity" (Summary Table 7).

Summary Table 7 The awareness on STEM education, coding and digital creativity (by education level)

	STEM education**		Coding**		Digital creativity*	
	Yes	No	Yes	No	Yes	No
Primary or below	12.0%	80.0%	32.0%	64.0%	40.0%	56.0%
Secondary	28.8%	70.5%	60.0%	39.3%	49.5%	49.9%
Tertiary or above	**70.0%**	29.6%	**74.1%**	25.7%	**53.4%**	46.4%

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*
^ The percentages of "don't know / hard to say" are excluded in the table, thus the percentages of "yes" and "no" may not exactly add up to 100%.

2.2 Regarding the **positive statements** of computational thinking, further analysis showed that the lower the education level, the more likely the respondents agreed with the sentences "learning coding was as important as learning English", "learning computational thinking via coding could help their children to enhance problem-solving skills and creativity" and "learning computational thinking via coding could help their children to enter different industries in the future", and gave relatively higher ratings to them (Summary Table 8).

Summary Table 8 The level of agreement towards the statements of computational thinking (Mean score) – Positive statements (by education level)

	Learning coding is as important as learning English**	Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity*	Learning computational thinking via coding helps my children to enter different industries in the future**
Primary or below	**7.35**	**7.82**	**8.17**
Secondary	6.58	6.81	7.04
Tertiary or above	5.14	6.71	6.66

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

2.3 As for the **negative statements**, the results were same as the positive statements, the lower the education level, the more likely the respondents agreed with the sentences "learning coding meant becoming programmers in the future" and "worried that computational thinking would lead to the excessive use of mobile phones and computers by their children", with higher mean scores (Summary Table 9). The above seemingly contradictory results, and also those in subsequent paragraphs, could possibly be explained that when asked to rate something, regardless of whether they were positive or negative, people of lower education tended to give higher scores in general.

Summary Table 9 The level of agreement towards the statements of computational thinking (Mean score) – Negative statements (by education level)

	Learning coding means becoming programmers in the future**	I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children**
Primary or below	**6.57**	**6.65**
Secondary	5.74	5.95
Tertiary or above	4.17	4.92

*** Statistically significantly at p<0.01 level*

By respondents' occupation

2.4 Executives and professionals' awareness on "STEM education" and "coding" were significantly higher than respondents of other occupations while homemakers' awareness on the "CoolThink@JC" project was the highest among all occupation groups (Summary Table 10).

Summary Table 10 The awareness on STEM education, coding and the "CoolThink@JC" project (by occupation)

	STEM education**		Coding**		"CoolThink@JC" project*	
	Yes	No	Yes	No	Yes	No
Executives and professionals	**64.7%**	35.0%	**74.9%**	24.8%	8.3%	91.1%
Clerical and service workers	50.9%	48.3%	67.5%	32.1%	9.2%	90.8%
Production workers	15.0%	83.8%	47.5%	52.5%	13.8%	86.3%
Homemakers	41.4%	57.5%	60.9%	38.3%	**15.8%**	82.6%

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*
^ The percentages of "don't know / hard to say" are excluded in the table, thus the percentages of "yes" and "no" may not exactly add up to 100%.

2.5 For the **positive statements** towards computational thinking, production workers were more likely to agree with the statements "learning coding was as important as learning English" and "learning computational thinking via coding could help their children to enter different industries in the future", with the highest mean scores. On the other hand, clerical and service workers, production workers and homemakers tended to give higher mean scores to the sentence "learning computational thinking via coding could help their children to enhance problem-solving skills and creativity". All in all, executives and professionals generally gave lower marks to these three positive statements compared with their counterparts (Summary Table 11).

Summary Table 11 The level of agreement towards the statements of computational thinking (Mean score) – Positive statements (by occupation)

	Learning coding is as important as learning English**	Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity*	Learning computational thinking via coding helps my children to enter different industries in the future**
Executives and professionals	5.18	6.49	6.51
Clerical and service workers	5.79	**6.94**	6.90
Production workers	**6.58**	**6.92**	**7.49**
Homemakers	6.46	**6.97**	7.10

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

2.6 As for the **negative statements**, production workers tended to agree with the statements "learning coding meant becoming programmers in the future" and "worried that computational thinking would lead to the excessive use of mobile phones and computers by their children", with higher marks than their counterparts (Sumamry Table 12).

Summary Table 12 The level of agreement towards the statements of computational thinking (Mean score) – Negative statements (by occupation)

	Learning coding means becoming programmers in the future**	I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children**
Executives and professionals	4.35	4.98
Clerical and service workers	4.87	5.48
Production workers	**5.81**	**5.83**
Homemakers	5.40	5.75

*** Statistically significantly at p<0.01 level*

By respondents' family economic condition

2.7 Respondents who perceived their family's economic condition as "good" were more likely to have heard of "STEM education" prior to the interview (Summary Table 13).

Summary Table 13 The awareness on STEM education (by family's economic condition)

	STEM education**	
	Yes	No
Good	**64.4%**	35.2%
Fair	45.5%	53.8%
Not good	26.9%	70.1%

*** Statistically significantly at p<0.01 level*

^ The percentages of "don't know / hard to say" are excluded in the table, thus the percentages of "yes" and "no" may not exactly add up to 100%.

2.8 Regarding the **positive statements** towards computational thinking, those who perceived their family's economic condition as "not good" tended to agree with the statements "learning coding was as important as learning English" and "learning computational thinking via coding could help their children to enter different industries in the future", and gave higher marks (Summary Table 14).

Summary Table 14 The level of agreement towards the statements of computational thinking (Mean score) – Positive statements (by family's economic condition)

	Learning coding is as important as learning English**	Learning computational thinking via coding helps my children to enter different industries in the future**
Good	5.19	6.56
Fair	6.10	6.96
Not good	**6.38**	**7.47**

*** Statistically significantly at p<0.01 level*

2.9 As for the **negative statements**, the results were same as the positive ones, those who perceived their family's economic condition as "not good" were more likely to agree with the statements "learning coding meant becoming programmers in the future" and "they were worried that computational thinking would lead to the excessive use of mobile phones and computers by their children", and gave relatively higher marks (Summary Table 15).

Summary Table 15 The level of agreement towards the statements of computational thinking (Mean score) – Negative statements (by family's economic condition)

	Learning coding means becoming programmers in the future**	I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children*
Good	4.19	5.11
Fair	5.25	5.52
Not good	**5.48**	**6.02**

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

By respondents' housing type

2.10 In terms of housing type, those living in "private housing" tended to have higher awareness than their counterparts on "STEM education" and "coding" (Summary Table 16).

Summary Table 16 The awareness on STEM education and coding (by housing type)

	STEM education**		Coding*	
	Yes	No	Yes	No
Public housing	25.9%	73.1%	59.7%	40.0%
Subsidized Home Ownership Scheme housing	58.3%	40.9%	61.7%	37.4%
Private housing	**61.3%**	38.4%	**70.7%**	28.9%

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*
^ The percentages of "don't know / hard to say" are excluded in the table, thus the percentages of "yes" and "no" may not exactly add up to 100%.

2.11 For the **positive statements** towards computational thinking, results showed that those living in "public housing" were more likely to agree with the statements "learning coding was as important as learning English" and "learning computational thinking via coding could help their children to enter different industries in the future", and the respective mean scores were significantly higher (Sumamry Table 17).

Summary Table 17 The level of agreement towards the statements of computational thinking (Mean score) – Positive statements (by housing type)

	Learning coding is as important as learning English**	Learning computational thinking via coding helps my children to enter different industries in the future*
Public housing	**6.50**	**7.17**
Subsidized Home Ownership Scheme housing	5.55	6.61
Private housing	5.52	6.78

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

2.12 As for the **negative statements**, similarly, those living in "public housing" tended to agree with the statements "learning coding meant becoming programmers in the future" and "they were worried that computational thinking would lead to the excessive use of mobile phones and computers by their children". The means scores for both sentences were significantly higher (Summary Table 18).

Summary Table 18 The level of agreement towards the statements of computational thinking (Mean score) – Negative statements (by housing type)

	Learning coding means becoming programmers in the future**	I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children*
Public housing	**5.61**	**5.78**
Subsidized Home Ownership Scheme housing	4.61	5.31
Private housing	4.63	5.26

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

By respondents' housing rental condition

2.13 In terms of housing rental condition, those who were living in "self-owned" flats were more likely to have heard of "STEM edcuation" while those living in "rental or sublet" flats were more familiar with the "CoolThink@JC" project (Summary Table 19).

Summary Table 19 The awareness on STEM education and the "CoolThink@JC" project (by housing rental condition)

	STEM education**		"CoolThink@JC" project**	
	Yes	No	Yes	No
Self-owned	**60.6%**	39.0%	7.9%	91.3%
Rent / sublet	37.8%	61.1%	**15.1%**	84.5%

*** Statistically significantly at p<0.01 level*
^ The percentages of "don't know / hard to say" are excluded in the table, thus the percentages of "yes" and "no" may not exactly add up to 100%.

2.14 For the **positive statements** towards computational thinking, those who were living in "rental or sublet" flats gave significantly higher marks to all three postitive sentences (Summary Table 20).

Summary Table 20 The level of agreement towards the statements of computational thinking (Mean score) – Positive statements (by housing rental condition)

	Learning coding is as important as learning English**	Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity*	Learning computational thinking via coding helps my children to enter different industries in the future**
Self-owned	5.31	6.66	6.59
Rent / sublet	**6.39**	**6.93**	**7.21**

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

2.15 Similarly, those living in "rental or sublet" flats gave significantly higher marks on all three **negative statements** on computational thinking (Summary Table 21).

Summary Table 21 The level of agreement towards the statements of computational thinking (Mean score) – Negative statements (by housing rental condition)

	Learning coding means becoming programmers in the future**	I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children**	Computational thinking education is not conducive to the future development of my children*
Self-owned	4.52	5.18	4.26
Rent / sublet	**5.39**	**5.69**	**4.58**

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

III. Conclusions and Recommendations

3.1 This "Parent Perception Survey on Computational Thinking 2018" showed that relatively more respondents had heard of "coding", "digital creativity" and "STEM education" while fewer respondents had heard of "computational thinking". Apart from "digital creativity", the awareness of the remaining three items have increased significantly as compared with last year. Among them, "STEM education" had the biggest increment. As for the "CoolThink@JC" project, the awareness among parents remained at 10% while more than 80% supported The Hong Kong Jockey Club Charities Trust to continue promoting computational thinking.

3.2 Moreover, nearly 20% of the respondents said their children were learning computational thinking via coding. Two-thirds agreed to incorporating education on computational thinking into the regular curriculum of secondary and primary schools, which had increased significantly over the year past. Meanwhile, 70% each agreed that learning computational thinking via coding could help their children to enter different industries in the future, as well as enhance their problem-solving skills and creativity.

3.3 In order to increase the reference value of the survey, it is recommended to include teachers as one of the research targets in future, to understand the teachers' awareness and views on computational thinking, and on incorporating education on computational thinking into the regular curriculum of secondary and primary schools, thus we can understand teachers' views on the project, as one of the stakeholders.

3.4 Furthermore, we recommend to incorporate qualitative study such as focus groups in the future which can supplement the current quantitative study by providing a deeper understanding of each particular target group's views (e.g. parents, teachers, students, etc.) on "STEM education", "coding", "computational thinking", "digital creativity" and the "CoolThink@JC" project.

Appendix I
Research Design

Research Design

1. After 2017, the Hong Kong Jockey Club Charities Trust commissioned The Public Opinion Programme at The University of Hong Kong again in 2018 to conduct this "Parent Perception Survey on Computational Thinking 2018". The objective of the survey was to measure parents' awareness of computational thinking and the "CoolThink@JC" project, and also compare some survey results of last year.

2. This was a random telephone survey conducted by telephone interviewers under close supervision. All data were collected by our interviewers using a Web-based Computer Assisted Telephone Interview (Web-CATI) system which allowed real-time data capture and consolidation. To ensure data quality, on top of on-site supervision and random checking, voice recording, screen capturing and camera surveillance were used to monitor the interviewers' performance.

3. To minimize sampling bias, telephone numbers were randomly generated using known prefixes assigned to telecommunication services providers under the Numbering Plan provided by the Office of the Communications Authority (OFCA). Invalid numbers were then eliminated according to computer and manual dialing records to produce the final sample.

4. The target population of this survey was **Cantonese-speaking parents whose child / children was / were studying in kindergarten, primary or secondary school**. For landline sample, if more than one subject had been available, selection was made using the "next birthday rule" which selected the person who had his / her birthday next. Telephone interviews were conducted during the period of **23 August to 7 September, 2018**. A total of **1,003** qualified parents were successfully interviewed, including 682 landline samples and 321 mobile samples. The effective response rate of this survey was **53.8%** (Table 2), and the standard sampling error for percentages based on this sample was less than 1.6 percentage points. In other words, the sampling error for all percentages using the total sample was less than plus/minus 3.2 percentage points at 95% confidence level.

5. Statistical tests of "difference-of-proportions" and "difference-of-means" have been employed whenever applicable, so as to identify any significant difference between the survey results in 2017 and 2018. Figures marked with double asterisks (**) indicate that the difference has been tested to be statistically significant at $p<0.01$ level, whereas those with single asterisk (*) denote statistical significance at $p<0.05$ level.

Appendix II
Contact Information

Table 1 Breakdown of contact information

	Frequency	Percentage
Respondents' ineligibility confirmed	**10,527**	**18.5%**
Fax / data line	331	0.6%
Invalid number	3,500	6.1%
Call-forwarding / mobile / pager number	177	0.3%
Non-residence / not personal mobile	234	0.4%
Special technological difficulties	37	0.1%
No eligible respondents	6,248	11.0%
Respondents' ineligibility not confirmed	**44,923**	**78.8%**
Line busy	1,348	2.4%
No answer	20,123	35.3%
Answering device	8,981	15.8%
Call-blocking	45	0.1%
Language problem	839	1.5%
Interview terminated before the screening question	253	0.4%
Others	23	<0.1%
Appointment date beyond the end of the fieldwork period – Respondents' ineligibility not confirmed	13,311	23.4%
Respondents' eligibility confirmed, but failed to complete the interview	**550**	**1.0%**
Household-level refusal	0	0.0%
Known respondent refusal	7	<0.1%
Appointment date beyond the end of the fieldwork period – Respondents' eligibility confirmed	488	0.9%
Partial interview	18	<0.1%
Miscellaneous	37	0.1%
Successful cases	**1,003**	**1.8%**
Total	**57,003**	**100.0%**

Table 2 Calculation of effective response rate

$$\text{Effective response rate} = \frac{\text{Successful cases}}{\text{Successful cases} + \text{Incomplete cases}^{*} + \text{Refusal cases by eligible respondents}^{\wedge} + \text{Projected refusal cases by eligible respondents}^{\#}}$$

$$= \frac{1{,}003}{1{,}003 + (18 + 253) + (0 + 7) + 584}$$

$$= 53.8\%$$

** Including "partial interview" and "interview terminated before the screening question"*

^ Including "household-level refusal" and "known respondent refusal"

 # Figure obtained by prorata

Appendix III
Frequency Tables

Table 3 [Q1-2_1] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **Chinese**

		2018			
		Frequency		Percentage (Base=1,003)	
0		1		0.1%	
2	}Not important	1	}7	0.1%	}0.7%
3		1		0.1%	
4		4		0.4%	
5	Half-half	49		4.9%	
6		30		3.0%	
7		90		9.0%	
8	}**Important**	275	}946	27.4%	}**94.3%**
9		178		17.7%	
10		373		37.2%	
Don't know / hard to say		1		0.1%	
Total		1,003		100.0%	
Mean		**8.6**			
Sampling error		+/-0.09			
Median		9.0			
Base		1,002			

Table 4 [Q1-2_2] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **English**

		2018			
		Frequency		Percentage (Base=1,003)	
0	}Not important	2	}5	0.2%	}0.5%
4		3		0.3%	
5	Half-half	24		2.4%	
6		19		1.9%	
7		50		5.0%	
8	}**Important**	230	}973	22.9%	}**97.0%**
9		209		20.8%	
10		465		46.4%	
Don't know / hard to say		1		0.1%	
Total		1,003		100.0%	
Mean		**8.9**			
Sampling error		+/-0.08			
Median		9.0			
Base		1,002			

Table 5 [Q1-2_3] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **Arts**

		2017				2018			
		Frequency		Percentage (Base=1,000)		Frequency		Percentage (Base=1,003)	
0		3		0.3%		8		0.8%	
1		1		0.1%		2		0.2%	
2	}Not important	6	}60	0.6%	}6.0%	3	}60	0.3%	}6.0%
3		28		2.8%		23		2.3%	
4		22		2.2%		24		2.4%	
5	Half-half	231		23.1%		208		20.7%	
6		161		16.1%		174		17.3%	
7		226		22.6%		224		22.3%	
8	}**Important**	213	}705	21.3%	}**70.5%**	224	}730	22.3%	}**72.8%**
9		40		4.0%		39		3.9%	
10		65		6.5%		69		6.9%	
Don't know / hard to say		4		0.4%		5		0.5%	
	Total	1,000		100.0%		1,003		100.0%	
	Missing	*1*				--			
	Mean	**6.6**				**6.7**			
	Sampling error	+/-0.11				+/-0.11			
	Median	7.0				7.0			
	Base	996				998			

Table 6 [Q1-2_4] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **Physical Education**

		2017			2018		
		Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=1,003)
1		2		0.2%	--		--
2	}Not important	4	}34	0.4%	1	}27	0.1%
3		14		1.4%	16		1.6%
4		14		1.4%	10		1.0%
5	Half-half	157		15.7%	121		12.1%*
6		114		11.4%	126		12.6%
7		243		24.3%	221		22.0%
8	}**Important**	269	}809	26.9%	304	}853	30.3%
9		66		6.6%	75		7.5%
10		117		11.7%	127		12.7%
Don't know / hard to say		1		0.1%	2		0.2%
Total		1,001		100.0%	1,003		100.0%
Mean		**7.2**			**7.4***		
Sampling error		+/-0.11			+/-0.10		
Median		7.0			8.0		
Base		1,000			1,001		

				80.8%			**85.0%***

** Statistically significantly at p<0.05 level*

Table 7 [Q1-2_5] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **Mathematics and Technology**

		2017			2018		
		Frequency		Percentage (Base=1,000)	Frequency		Percentage (Base=1,002)
0		2		0.2%	2		0.2%
2	}Not important	2	}17	0.2% }1.7%	1	}14	0.1% }1.4%
3		4		0.4%	5		0.5%
4		9		0.9%	6		0.6%
5	Half-half	62		6.2%	57		5.7%
6		55		5.5%	31		3.1%**
7		162		16.2%	132		13.2%
8	}**Important**	331	}915	33.1% }**91.5%**	326	}924	32.5% }**92.2%**
9		149		14.9%	155		15.5%
10		218		21.8%	280		27.9%**
Don't know / hard to say		6		0.6%	7		0.7%
	Total	1,000		100.0%	1,002		100.0%
	Missing	*1*			*1*		
	Mean	**8.0**			**8.3****		
	Sampling error	+/-0.10			+/-0.10		
	Median	8.0			8.0		
	Base	994			995		

*** Statistically significantly at p<0.01 level*

Table 8 [Q1-2_6] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **History and Culture**

		2017			2018		
		Frequency		Percentage (Base=1,000)	Frequency		Percentage (Base=1,003)
0		7		0.7%	8		0.8%
1		2		0.2%	--		--
2	}Not important	9	}71	0.9% }7.1%	6	}56	0.6% }5.6%
3		27		2.7%	17		1.7%
4		26		2.6%	25		2.5%
5	Half-half	180		18.0%	175		17.4%
6		136		13.6%	140		14.0%
7		197		19.7%	198		19.7%
8	}**Important**	258	}746	25.8% }**74.6%**	249	}769	24.8% }**76.7%**
9		56		5.6%	66		6.6%
10		99		9.9%	116		11.6%
Don't know / hard to say		3		0.3%	3		0.3%
	Total	1,000		100.0%	1,003		100.0%
	Missing	*1*			--		
	Mean	**6.9**			**7.0**		
	Sampling error	+/-0.12			+/-0.12		
	Median	7.0			7.0		
	Base	997			1,000		

Table 9 [Q1-2_7] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. - **General studies / Liberal Studies**

		2018			
		Frequency		Percentage (Base=1,002)	
0		5		0.5%	
1		1		0.1%	
2	}Not important	3	}26	0.3%	}2.6%
3		2		0.2%	
4		15		1.5%	
5	Half-half	104		10.4%	
6		76		7.6%	
7		179		17.9%	
8	}**Important**	306	}867	30.5%	}**86.5%**
9		119		11.9%	
10		187		18.7%	
Don't know / hard to say		5		0.5%	
	Total	1,002		100.0%	
	Missing	*1*			
	Mean	**7.7**			
	Sampling error	+/-0.11			
	Median	8.0			
	Base	997			

Table 10 [Q3-4_1] Before this interview, have you ever heard of the following items? If yes, have you heard of it / them before or after the summer vacation in 2016? - **STEM education**

		2017			2018		
		Frequency	Percentage (Base=1,001)		Frequency	Percentage (Base=1,003)	
Yes, have heard of it before the summer vacation in 2016		156	15.6%		193	19.2%*	
Yes, have heard of it after the summer vacation in 2016	}**Yes**	164 }370	16.4%	}37.0%	232 }499	23.1%**	}**49.8%****
Yes, but can't remember when		48	4.8%		71	7.1%*	
Yes, but refuse to answer when		2	0.2%		3	0.3%	
No		626	**62.5%**		497	49.6%**	
Don't know / hard to say		5	0.5%		7	0.7%	
Total		1,001	100.0%		1,003	100.0%	

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 11 [Q3-4_2] Before this interview, have you ever heard of the following items? If yes, have you heard of it / them before or after the summer vacation in 2016? - **Coding**

		2017			2018		
		Frequency	Percentage (Base=1,001)		Frequency	Percentage (Base=1,003)	
Yes, have heard of it before the summer vacation in 2016		379	37.9%		330	32.9%*	
Yes, have heard of it after the summer vacation in 2016	}**Yes**	132 }612	13.2%	}**61.1%**	226 }669	22.5%**	}**66.7%****
Yes, but can't remember when		98	9.8%		113	11.3%	
Yes, but refuse to answer when		3	0.3%		--	--	
No		384	38.4%		329	32.8%**	
Don't know / hard to say		5	0.5%		5	0.5%	
Total		1,001	100.0%		1,003	100.0%	

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 12 [Q3-4_3] Before this interview, have you ever heard of the following items? If yes, have you heard of it / them before or after the summer vacation in 2016? - **Computational thinking**

		2017			2018		
		Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=1,003)
Yes, have heard of it before the summer vacation in 2016		175		17.5%	164		16.4%
Yes, have heard of it after the summer vacation in 2016	}Yes	78	}299	7.8% }29.9%	124	}364	12.4%** }36.3%**
Yes, but can't remember when		45		4.5%	70		7.0%*
Yes, but refuse to answer when		1		0.1%	6		0.6%
No		694		**69.3%**	631		**62.9%****
Don't know / hard to say		8		0.8%	8		0.8%
Total		1,001		100.0%	1,003		100.0%

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 13 [Q3-4_4] Before this interview, have you ever heard of the following items? If yes, have you heard of it / them before or after the summer vacation in 2016? - **Digital creativity**

		2017			2018		
		Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=1,003)
Yes, have heard of it before the summer vacation in 2016		294		29.4%	224		22.3%**
Yes, have heard of it after the summer vacation in 2016	}**Yes**	137	}512	13.7% }**51.1%**	187	}515	18.6%** }**51.3%**
Yes, but can't remember when		79		7.9%	103		10.3%
Yes, but refuse to answer when		2		0.2%	1		0.1%
No		486		48.6%	483		48.2%
Don't know / hard to say		3		0.3%	5		0.5%
Total		1,001		100.0%	1,003		100.0%

*** Statistically significantly at p<0.01 level*

Table 14 [Q5] Have you ever heard of the "CoolThink@JC" project (賽馬會運算思維教育計劃)? [Must read out the name in Chinese and English]

	2017		2018	
	Frequency	Percentage (Base=1,001)	Frequency	Percentage (Base=1,000)
Yes	100	10.0%	110	11.0%
No	898	**89.7%**	884	**88.4%**
Can't remember	3	0.3%	6	0.6%
Total	1,001	100.0%	1,000	100.0%
Missing	--		*3*	

[Interviewers read out: Computational thinking education aims at inspiring students in digital creativity and problem-solving in daily life, as well as coping with innovation and challenges in future.]

Table 15 [Q6] How much do you support or oppose The Hong Kong Jockey Club Charities Trust to continue promoting computational thinking? [Interviewers to probe intensity]

		2018			
		Frequency		Percentage (Base=993)	
Very much support	}**Support**	490	}837	49.3%	}**84.3%**
Quite support		347		34.9%	
Half-half		56		5.6%	
Quite oppose	}Oppose	11	}18	1.1%	}1.8%
Very much oppose		7		0.7%	
Don't know / hard to say		82		8.3%	
Total		993		100.0%	
Missing		*10*			
Mean value^		**4.4**			
Sampling error		+/-0.05			
Median		5.0			
Base		911			

^ Mean value is calculated by quantifying all individual responses into 1, 2, 3, 4, 5 marks according to their degree of positive level, where 1 is very much oppose and 5 is very much support, and then calculate the sample mean.

Table 16 [Q7] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. - **Learning coding means becoming programmers in the future** (Negative description)

		2017			2018		
		Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=1,002)
0		96		9.6%	109		10.9%
1		13		1.3%	12		1.2%
2	}Disagree	35	}332	3.5% }33.2%	53	}329	5.3% }32.8%
3		109		10.9%	105		10.5%
4		79		7.9%	50		5.0%**
5	Half-half	316		31.6%	314		31.3%
6		105		10.5%	93		9.3%
7		85		8.5%	80		8.0%
8	}**Agree**	95	}346	9.5% }**34.6%**	82	}349	8.2% }**34.8%**
9		21		2.1%	14		1.4%
10		40		4.0%	80		8.0%**
Don't know / hard to say		7		0.7%	10		1.0%
Total		1,001		100.0%	1,002		100.0%
Missing		--			*1*		
Mean		**4.9**			**4.9**		
Sampling error		+/-0.16			+/-0.17		
Median		5.0			5.0		
Base		994			992		

*** Statistically significantly at p<0.01 level*

Table 17 [Q8] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. - **Learning coding is as important as learning English** (Positive description)

		2017				2018			
		Frequency		Percentage (Base=1,001)		Frequency		Percentage (Base=1,003)	
0		44		4.4%		46		4.6%	
1		12		1.2%		19		1.9%	
2	}Disagree	42	}277	4.2%	}27.7%	33	}234	3.3%	}23.3%*
3		96		9.6%		76		7.6%	
4		83		8.3%		60		6.0%*	
5	Half-half	282		28.2%		267		26.6%	
6		98		9.8%		89		8.9%	
7		108		10.8%		123		12.3%	
8	}**Agree**	141	}436	14.1%	}**43.6%**	144	}499	14.4%	}**49.8%****
9		31		3.1%		28		2.8%	
10		58		5.8%		115		11.5%**	
Don't know / hard to say		6		0.6%		3		0.3%	
Total		1,001		100.0%		1,003		100.0%	
Mean		**5.5**				**5.8****			
Sampling error		+/-0.15				+/-0.16			
Median		5.0				5.0			
Base		995				1,000			

** Statistically significantly at p<0.05 level*

*** Statistically significantly at p<0.01 level*

Table 18 [Q9] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. **- I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children** (Negative description)

		2017			2018		
		Frequency		Percentage (Base=1,000)	Frequency		Percentage (Base=1,002)
0		48		4.8%	56		5.6%
1		15		1.5%	16		1.6%
2	}Disagree	32	}265	3.2% }26.5%	56	}283	5.6%** }28.2%
3		94		9.4%	90		9.0%
4		76		7.6%	65		6.5%
5	Half-half	278		27.8%	258		25.7%
6		110		11.0%	97		9.7%
7		128		12.8%	117		11.7%
8	}**Agree**	116	}442	11.6% }**44.2%**	124	}441	12.4% }**44.0%**
9		37		3.7%	27		2.7%
10		51		5.1%	76		7.6%*
Don't know / hard to say		15		1.5%	20		2.0%
Total		1,000		100.0%	1,002		100.0%
Missing		*1*			*1*		
Mean		**5.5**			**5.4**		
Sampling error		+/-0.15			+/-0.16		
Median		5.0			5.0		
Base		985			982		

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 19 [Q10] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. - **Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity** (Positive description)

		2017		2018	
		Frequency	Percentage (Base=1,000)	Frequency	Percentage (Base=1,003)
0		20	2.0%	10	1.0%
1		2	0.2%	3	0.3%
2	}Disagree	18 }102	1.8% }10.2%	6 }80	0.6%* }8.0%
3		29	2.9%	27	2.7%
4		33	3.3%	34	3.4%
5	Half-half	223	22.3%	207	20.6%
6		142	14.2%	122	12.2%
7		208	20.8%	181	18.0%
8	}**Agree**	188 }647	18.8% }**64.7%**	219 }682	21.8% }**68.0%**
9		51	5.1%	58	5.8%
10		58	5.8%	102	10.2%**
Don't know / hard to say		28	2.8%	34	3.4%
Total		1,000	100.0%	1,003	100.0%
Missing		*1*		--	
Mean		**6.4**		**6.8****	
Sampling error		+/-0.13		+/-0.13	
Median		7.0		7.0	
Base		972		969	

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 20 [Q11] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. **- Learning computational thinking via coding can help my children to enter different industries in the future** (Positive description)

		2017		2018	
		Frequency	Percentage (Base=1,000)	Frequency	Percentage (Base=1,003)
0		16	1.6%	17	1.7%
1		4	0.4%	4	0.4%
2	}Disagree	20 }95	2.0% }9.5%	9 }85	0.9%* }8.5%
3		30	3.0%	27	2.7%
4		25	2.5%	28	2.8%
5	Half-half	205	20.5%	182	18.1%
6		145	14.5%	122	12.2%
7		204	20.4%	190	18.9%
8	}**Agree**	196 }689	19.6% }**68.9%**	212 }716	21.1% }**71.4%**
9		67	6.7%	58	5.8%
10		77	7.7%	134	13.4%**
Don't know / hard to say		11	1.1%	20	2.0%
Total		1,000	100.0%	1,003	100.0%
Missing		*1*		--	
Mean		**6.6**		**6.9****	
Sampling error		+/-0.13		+/-0.13	
Median		7.0		7.0	
Base		989		983	

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 21 [Q12] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. - **Computational thinking education is not conducive to the future development of my children** (Negative description)

		2018			
		Frequency		Percentage (Base=1,003)	
0		104		10.4%	
1		14		1.4%	
2	}**Disagree**	71	}403	7.1%	}**40.2%**
3		137		13.7%	
4		77		7.7%	
5	Half-half	336		33.5%	
6		82		8.2%	
7		56		5.6%	
8	}Agree	54	}235	5.4%	}23.4**%**
9		10		1.0%	
10		33		3.3%	
Don't know / hard to say		29		2.9%	
Total		1,003		100.0%	
Mean		**4.4**			
Sampling error		+/-0.15			
Median		5.0			
Base		974			

[Interviewers read out: if you have more than one child, please answer the following questions with respect to the child who is studying in primary 4 to 6. The second priority goes to the one studying in primary 1 to 3, then secondary school and finally kindergarten. If there are more than one child in the same group (e.g. more than one studying in primary 4 to 6), please answer with respect to the younger child.]

Table 22 [Q13] Is your child learning computational thinking via coding? If yes, is s/he learning it at school or outside?

	2017			2018		
	Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=1,002)
Yes, learning at school	130		13.0%	123		12.3%
Yes, learning outside	26		2.6%	33		3.3%
Yes, learning at both school and outside }Yes	20	}178	2.0% }17.8%	26	}185	2.6% }18.5%
Yes, but don't know where the place of learning	2		0.2%	3		0.3%
No	758		**75.7%**	747		**74.6%**
Don't know / hard to say	65		6.5%	70		7.0%
Total	1,001		100.0%	1,002		100.0%
Missing	--			*1*		

Table 23 [Q14] Do you agree or disagree to incorporating education on computational thinking into the regular curriculum of secondary schools and primary schools, which means teaching it during the lessons of Computer, General Studies or Liberal Studies? [Interviewers to probe intensity]

	2017			2018		
	Frequency		Percentage (Base=1,001)	Frequency		Percentage (Base=998)
Very much agree }**Agree**	232	}625	23.2% }**62.5%**	283	}668	28.4%** }**66.9%***
Quite agree	393		39.3%	385		38.6%
Half-half	115		11.5%	121		12.1%
Quite disagree }Disagree	124	}197	12.4% }19.7%	89	}146	8.9%* }14.6%**
Very much disagree	73		7.3%	57		5.7%
Don't know / Hard to say	63		6.3%	63		6.3%
Total	1,000		100.0%	998		100.0%
Missing	*1*			*5*		
Mean value^	**3.6**			**3.8****		
Sampling error	+/-0.08			+/-0.08		
Median	4.0			4.0		
Base	937			935		

** Statistically significantly at p<0.05 level*

*** Statistically significantly at p<0.01 level*

^ Mean value is calculated by quantifying all individual responses into 1, 2, 3, 4, 5 marks according to their degree of positive level, where 1 is very much disagree and 5 is very much agree, and then calculate the sample mean.

Table 24 [Q15] [Only ask respondents who answered "very much agree" or "quite agree" in Q14, base=625 (2017) and 668 (2018)] Why do you agree? [Do not read out options, multiple answers allowed]

	2017			2018		
	Freq.	% of total responses (Base=996)	% of valid sample (Base=625)	Freq.	% of total responses (Base=1,061)	% of valid sample (Base=666)
Help in learning one more thing / technique	219	22.0%	**35.0%**	226	21.3%	**33.9%**
Follow social trend	160	16.1%	25.6%	173	16.3%	26.0%
Learn a technique which is necessary in the digital era	132	13.3%	21.1%	120	11.3%	18.0%
Help in developing children's logical thinking	72	7.2%	11.5%	77	7.3%	11.6%
Help in training children's problem solving skills	67	6.7%	10.7%	76	7.2%	11.4%
Help in learning different subjects	57	5.7%	9.1%	59	5.6%	8.9%
Help children in building up future career	64	6.4%	10.2%	54	5.1%	8.1%
Useful / beneficial	30	3.0%	4.8%	48	4.5%	7.2%
Help in enhancing children's creativity	35	3.5%	5.6%	40	3.8%	6.0%
Enhance children's competitiveness	33	3.3%	5.3%	36	3.4%	5.4%
Enhance children's interest in learning	12	1.2%	1.9%	26	2.5%	3.9%*
Children are interested to learn	13	1.3%	2.1%	20	1.9%	3.0%
No special reason / let the children learn if they have time	8	0.8%	1.3%	20	1.9%	3.0%*
Help in learning related knowledge in the future	13	1.3%	2.1%	19	1.8%	2.9%
Better to be taught in school	8	0.8%	1.3%	16	1.5%	2.4%
Help in continuing study (including easier to find a better school)	14	1.4%	2.2%	11	1.0%	1.7%
Help children in growing up	9	0.9%	1.4%	11	1.0%	1.7%
Help children in entering the IT industry	11	1.1%	1.8%	9	0.8%	1.4%
Transform the habit of playing electronic games into creativity or something useful	10	1.0%	1.6%	8	0.8%	1.2%
Other family's children	3	0.3%	0.5%	1	0.1%	0.2%

	2017			2018		
	Freq.	% of total responses (Base=996)	% of valid sample (Base=625)	Freq.	% of total responses (Base=1,061)	% of valid sample (Base=666)
have learnt						
Others (see below)	17	1.7%	2.7%	2	0.2%	0.3%**
Don't know / Hard to say	9	0.9%	1.4%	9	0.8%	1.4%
Total	996	100.0%		1,061	100.0%	
Missing	--			*2*		
Other responses that cannot be grouped						
Parents can teach their children	--	--	--	1	0.1%	0.2%
Have confidence in HKJC to promote computational thinking	--	--	--	1	0.1%	0.2%
Can improve the current curriculum	4	0.4%	0.6%	--	--	--
Save money	4	0.4%	0.6%	--	--	--
Bring fewer books	3	0.3%	0.5%	--	--	--
Can share what you have learned	1	0.1%	0.2%	--	--	--
Can control the time	1	0.1%	0.2%	--	--	--
Want children to understand and learn the things behind the game	1	0.1%	0.2%	--	--	--
Time control is better than self-study	1	0.1%	0.2%	--	--	--
Flexible	1	0.1%	0.2%	--	--	--
Lesson time will notbe too long, so it will not cause eye damage	1	0.1%	0.2%	--	--	--
Sub-total	17	1.7%	2.7%	2	0.2%	0.3%

** Statistically significantly at p<0.05 level*
*** Statistically significantly at p<0.01 level*

Table 25 [Q16] [Only ask respondents who answered "very much disagree" or "quite disagree" in Q14, base=197 (2017) and 146 (2018)] Why do you disagree? [Do not read out options, multiple answers allowed]

	2017			2018		
	Freq.	% of total responses (Base=277)	% of valid sample (Base=197)	Freq.	% of total responses (Base=223)	% of valid sample (Base=145)
Children already have too much to learn	25	9.0%	12.7%	26	11.7%	**17.9%**
Primary school students are too young	38	13.7%	**19.3%**	23	10.3%	15.9%
Students are under too much pressure	27	9.7%	13.7%	23	10.3%	15.9%
Prevent children from playing electronic games / excessively using mobile phone or computer	29	10.5%	14.7%	21	9.4%	14.5%
No need to learn / time-wasting	34	12.3%	17.3%	19	8.5%	13.1%
Depend on children's interest and ability	27	9.7%	13.7%	19	8.5%	13.1%
No need to learn via regular curriculum	3	1.1%	1.5%	17	7.6%	11.7%**
Children have no time to learn	16	5.8%	8.1%	13	5.8%	9.0%
Cannot understand the benefits of computational thinking	11	4.0%	5.6%	11	4.9%	7.6%
Want children to focus on study	9	3.2%	4.6%	10	4.5%	6.9%
Computational thinking is not universal / is too new	3	1.1%	1.5%	7	3.1%	4.8%
Afraid to affect children's health	3	1.1%	1.5%	6	2.7%	4.1%
Children are not interested to learn	5	1.8%	2.5%	5	2.2%	3.4%
Cannot help / not useful to children	9	3.2%	4.6%	5	2.2%	3.4%
Cannot help in children's future career	3	1.1%	1.5%	4	1.8%	2.8%
Lack of ideas of what is computational thinking	10	3.6%	5.1%	4	1.8%	2.8%
Current curriculum is enough / has included computation thinking	6	2.2%	3.0%	3	1.3%	2.1%
Teachers might not know how to teach	4	1.4%	2.0%	2	0.9%	1.4%
Cannot help in continuing study	6	2.2%	3.0%	--	--	--
Others (see below)	6	2.2%	3.0%	4	1.8%	2.8%

	2017			2018		
	Freq.	% of total responses (Base=277)	% of valid sample (Base=197)	Freq.	% of total responses (Base=223)	% of valid sample (Base=145)
Don't know / Hard to say	3	1.1%	1.5%	1	0.4%	0.7%
Total	277	100.0%		223	100.0%	
Missing	--			*1*		
Other responses that cannot be grouped						
Better to teach in traditional way	--	--	--	1	0.4%	0.7%
Schools use different ways to teach computational thinking	--	--	--	1	0.4%	0.7%
Would like children to expose more the nature	--	--	--	1	0.4%	0.7%
Teachers are under too much pressure	--	--	--	1	0.4%	0.7%
Better to use traditional teaching way in primary school	2	0.7%	1.0%	--	--	--
Cannot solely learn computational thinkg	1	0.4%	0.5%	--	--	--
Mix up virtual and real world	1	0.4%	0.5%	--	--	--
Reduce concentration	1	0.4%	0.5%	--	--	--
Computation thinking is outdated	1	0.4%	0.5%	--	--	--
Sub-total	6	2.2%	3.0%	4	1.8%	2.8%

** *Statistically significantly at p<0.01 level*

Appendix IV
Demographics of the Respondents

Demographics of Respondents

Table 26 [DM1] Gender

	Frequency	Percentage (Base=1,003)
Male	375	37.4%
Female	628	62.6%
Total	1,003	100.0%

Table 27 [DM2] Age

	Frequency	Percentage (Base=988)
20 - 29	22	2.2%
30 - 39	399	40.4%
40 - 49	466	47.2%
50 - 59	82	8.3%
60 - 69	13	1.3%
70 or above	6	0.6%
Total	988	100.0%
Missing	*15*	

Table 28 [DM3] Education level

	Frequency	Percentage (Base=997)
Primary or below	25	2.5%
Secondary	455	45.6%
Tertiary or above	517	51.9%
Total	997	100.0%
Missing	*6*	

Table 29 [DM4] Occupation

	Frequency	Percentage (Base=986)
Executives and professionals	351	35.6%
Clerical and service workers	271	27.5%
Production workers	80	8.1%
Homemakers	266	27.0%
Others	18	1.8%
Total	986	100.0%
Missing	*17*	

Table 30 [DM5] What is / are your child / children studying? [If more than one child, please record the education level of every child, multiple answers allowed, one of the children must be studying in kindergarten, primary school or secondary school]

	Frequency	% of total responses (Base=1,383)	% of valid sample (Base=1,003)
Not yet entered school	50	3.6%	5.0%
Kindergarten	335	24.2%	33.4%
Primary school	592	42.8%	59.0%
Secondary school	338	24.4%	33.7%
Tertiary, non-degree	12	0.9%	1.2%
University	44	3.2%	4.4%
Working	12	0.9%	1.2%
Total	1,383	100.0%	

Table 31 [DM5_1] What is / are your child / children studying? - Not yet entered school, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=50)
1	49	98.0%
2	1	2.0%
Total	50	100.0%
Mean	1.0	
Sampling error	+/-0.04	
Median	1.0	
Base	50	

Table 32 [DM5_2] What is / are your child / children studying? - Kindergarten, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=335)
1	295	88.1%
2	39	11.6%
3	1	0.3%
Total	335	100.0%
Mean	1.1	
Sampling error	+/-0.04	
Median	1.0	
Base	335	

Table 33 [DM5_3] What is / are your child / children studying? - Primary school, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=592)
1	437	73.8%
2	147	24.8%
3	8	1.4%
Total	592	100.0%
Mean	1.3	
Sampling error	+/-0.04	
Median	1.0	
Base	592	

Table 34 [DM5_4] What is / are your child / children studying? - Secondary school, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=338)
1	286	84.6%
2	49	14.5%
3	3	0.9%
Total	338	100.0%
Mean	1.2	
Sampling error	+/-0.04	
Median	1.0	
Base	338	

Table 35 [DM5_5] What is / are your child / children studying? - Tertiary, non-degree, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=12)
1	12	100.0%
Total	12	100.0%
Mean	1.0	
Sampling error	+/-0.00	
Median	1.0	
Base	12	

Table 36 [DM5_6] What is / are your child / children studying? - University, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=44)
1	43	97.7%
2	1	2.3%
Total	44	100.0%
Mean	1.0	
Sampling error	+/-0.05	
Median	1.0	
Base	44	

Table 37 [DM5_7] What is / are your child / children studying? - Working, _____ child(ren) [Input exact figures]

	Frequency	Percentage (Base=12)
1	9	75.0%
2	3	25.0%
Total	12	100.0%
Mean	1.3	
Sampling error	+/-0.26	
Median	1.0	
Base	12	

Table 38 [DM5gp] Number of children [Integrated Data]

	Frequency	Percentage (Base=1,003)
1	439	43.8%
2	490	48.9%
3	68	6.8%
4	6	0.6%
Total	1,003	100.0%

Table 39 [DM6] Which of the following best describes your family's economic condition? [read out the first five options]

		Frequency		Percentage (Base=995)	
Very good	}Good	35	}298	3.5%	}29.9%
Quite good		263		26.4%	
Fair		626		62.9%	
Not quite good	}Not good	53	}67	5.3%	}6.7%
Not good at all		14		1.4%	
Don't know / hard to say		4		0.4%	
Total		995		100.0%	
Missing		*8*			

Table 40 [DM7a] Which type of housing do you live?

	Frequency	Percentage (Base=966)
Public housing	290	30.0%
Subsidised Home Ownership Scheme housing	115	11.9%
Private housing	560	58.0%
Others	1	0.1%
Total	966	100.0%
Missing	*37*	

Table 41 [DM7b] Is it owned, rent or sublet?

	Frequency	Percentage (Base=972)
Owned	520	53.5%
Rent	424	43.6%
Sublet	28	2.9%
Total	972	100.0%
Missing	*31*	

Table 42 [DM7gp] Housing type [Integrated Data]

	Frequency	Percentage (Base=961)
Rent public housing	256	26.6%
Sublet public housing	6	0.6%
Owned public housing	27	2.8%
Rent subsidised Home Ownership Scheme housing	14	1.5%
Owned subsidised Home Ownership Scheme housing	100	10.4%
Rent private housing	147	15.3%
Sublet private housing	22	2.3%
Owned private housing	388	40.4%
Others	1	0.1%
Total	961	100.0%
Missing	*42*	

Appendix V
Questionnaire

Public Opinion Programme
The University of Hong Kong

The Hong Kong Jockey Club Charities Trust

Jointly conducted

Parent Perception Survey on Computation Thinking 2018

Questionnaire

August 22, 2018

Part 1 Introduction

Good evening! My name is X. I am an interviewer at the Public Opinion Programme of The University of Hong Kong. We are conducting an opinion survey on kindergarten, primary and secondary school parents' perception on **computational thinking**. I would like to invite you to participate in an interview which will take 10 minutes. Is it okay for us to start this survey?

Yes → Continue to introduction

No → Interview ends, thank you for your cooperation, bye-bye

Don't have kindergarten, primary and secondary school parents at home → Interview ends, thank you for your cooperation, bye-bye

I would like to stress that your number is randomly drawn from our database and your responses will be kept strictly confidential within the university's research team. All data collected will be used for aggregate analysis only. If you have any questions about the research, you can call xxxx-xxxx to talk to our supervisors. If you want to know more about the rights as a participant, please contact The University of Hong Kong (full name: Human Research Ethics Committee for Non-Clinical Faculties of The University of Hong Kong) at xxxx-xxxx during office hours. For quality control purpose, our conversation will be recorded for internal reference. All data containing personal identifiers and the recording will be destroyed within six months upon project completion. Is it okay for us to start this survey?

[S1] Is the telephone number here xxxx-xxxx ?

Yes → S2

No → Interview ends, thank you for your cooperation, bye-bye

Part II Selection of Respondents

[For landline samples]

[S2] Are there any **Cantonese-speaking parents whose child / children is / are studying in kindergarten, primary or secondary school**? 【If there are no eligible interviewee, interview ends, thank you for your cooperation, bye-bye】

Yes → Start the interview [If the target respondent is not the one who answers the phone, please invite the target respondent to answer the phone and the interviewer re-introduces himself / herself]

Yes, more than one, _____ (exact number) → Ask S3

No → Interview ends, thank you for your cooperation, bye-bye.

Refuse to answer → Interview ends, thank you for your cooperation, bye-bye.

[S3] Since there is more than one available, we hope that all qualified family members have the equal chance to be interviewed. I would like to speak to the one who will have his / her **birthday next**. (Interviewer can ask: "Is there anyone whose birthday is in August/ September or the coming three months?") Is it okay for us to start now?

Yes - The one answered the phone is the respondent → Start the interview

Yes - Another family member is the respondent → Start the interview【interviewer please repeat the self-introduction and read out, "For quality control purpose, our conversation will be recorded for internal reference. All data containing personal identifiers and the recording will be destroyed within six months upon project completion."】

The qualified family member is not at home / not available → 【interviewer please arrange another time for interview】

No - Family member refuses to answer → Interview ends, thank you for your cooperation, bye-bye

No - Respondent refuses to answer → Interview ends, thank you for your cooperation, bye-bye

[For mobile samples]

[S4] Are you a **Cantonese-speaking parent whose child / children is / are studying in kindergarten, primary or secondary school**?

Yes → Start the interview

No → Interview ends, thank you for your cooperation, bye-bye

Refuse to answer → Interview ends, thank you for your cooperation, bye-bye

Part III Opinion Questions

[Q1-2] How important do you think each of the following items is to your children's development? Please rate on a scale from 0 to 10, with 0 indicating not important at all, 5 indicating half-half and 10 indicating very important. [Read out items a to g, order to be randomized by computer, interviewers to probe the rating of each item]

a) Chinese
b) English
c) Arts
d) Physical Education
e) Mathematics and Technology
f) History and Culture
g) General Studies / Liberal Studies

_____ (0-10 marks, exact number)
Don't know / hard to say
Refuse to answer

[Q3-4] Before this interview, have you ever heard of the following items? If yes, have you heard of it / them before or after the summer vacation in 2016? [Read out items a to d, must read out each item in Chinese and English]

a) STEM 教育／STEM education
b) 電腦程式編寫／Coding
c) 計算思維／運算思維／Computational thinking
d) 數碼創意／Digital creativity

Answers for each option:
Yes, have heard of it before the summer vacation in 2016
Yes, have heard of it after the summer vacation in 2016
Yes, but can't remember when
Yes, but refuse to answer when
No
Don't know / hard to say
Refuse to answer

[Q5] Have you ever heard of the "CoolThink@JC" project (賽馬會運算思維教育計劃)? [Must read out the name in Chinese and English]

Yes
No
Can't remember
Refuse to answer

[Interviewers read out: Computational thinking education aims at inspiring students in digital creativity and problem-solving in daily life, as well as coping with innovation and challenges in future.]

[Q6] How much do you support or oppose The Hong Kong Jockey Club Charities Trust to continue promoting computational thinking? [Interviewers to probe intensity]

Very much support
Quite support
Half-half
Quite oppose
Very much oppose
Don't know / hard to say
Refuse to answer

[Q7-12] How much do you agree or disagree with the following statements? Please rate on a scale from 0 to 10 on with 0 indicating very much disagree, 5 indicating half-half and 10 indicating very much agree. [Read out items 1 to 6, interviewers to probe scores]

[Q7] Learning coding means becoming programmers in the future
[Q8] Learning coding is as important as learning English
[Q9] I am worried that computational thinking will lead to the excessive use of mobile phones and computers by my children
[Q10] Learning computational thinking via coding can help my children to enhance problem-solving skills and creativity
[Q11] Learning computational thinking via coding can help my children to enter different industries in the future
[Q12] Computational thinking education is not conducive to the future development of my children

_____ (0-10 marks, exact number)
Don't know / hard to say
Refuse to answer

[Interviewers read out: if you have more than one child, please answer the following questions with respect to the child who is studying in primary 4 to 6. The second priority goes to the one studying in primary 1 to 3, then secondary school and finally kindergarten. If there are more than one child in the same group (e.g. more than one studying in primary 4 to 6), please answer with respect to the younger child.]

[Q13] Is your child learning computational thinking via coding? If yes, is s/he learning it at school or outside?

Yes, learning at school
Yes, learning outside
Yes, learning at both school and outside
Yes, but don't know where the place of learning
Yes, refuse to answer the place of learning
No
Don't know / hard to say
Refuse to answer

[Q14] Do you agree or disagree to incorporating education on computational thinking into the regular curriculum of secondary schools and primary schools, which means teaching it during the lessons of Computer, General Studies or Liberal Studies? [Interviewers to probe intensity]

Very much agree (Ask Q15)
Quite agree (Ask to Q15)
Half-half (Skip to DM1)
Quite disagree (Skip to Q16)
Very much disagree (Skip to Q16)
Don't know / hard to say (Skip to DM1)
Refuse to answer (Skip to DM1)

[Q15] [Only ask respondents who answered "very much agree" or "quite agree" in Q14] Why do you agree? [Do not read out options, multiple answers allowed]

Help in continuing study (including easier to find a better school)
Help in learning different subjects
Help in training children's problem solving skills
Help in enhancing children's creativity
Children are interested to learn
Help children in building up future career
Help children in entering the IT industry
Help in learning one more thing / technique
Follow social trend
Other family's children have learnt
No special reason / let the children learn if they have time
Transform the habit of playing electronic games into creativity or something useful
Learn a technique which is necessary in the digital era
Others, please specify: _____
Don't know / hard to say
Refuse to answer

[Q16] [Only ask respondents who answered "very much disagree" or "quite disagree" in Q14] Why do you disagree? [Do not read out options, multiple answers allowed]

Cannot help in continuing study
Want children to focus on study
Children are not interested to learn
Children have no time to learn
No need to learn / time-wasting
Cannot help in children's future career
Prevent children from entering the IT industry in the future
Prevent children from playing electronic games / excessively using mobile phone or computer
Primary school students are too young

Students are under too much pressure
Computational thinking is not universal / is too new
Teachers might not know how to teach
Cannot understand the benefits of computational thinking
Lack of ideas of what is computational thinking
Others, please specify: _____
Don't know / hard to say
Refuse to answer

Part IV Demographics

We would like to ask you some personal information for aggregate analyses. Please rest assured that your information provided will be kept strictly confidential.

[DM1] Gender

Male
Female

[DM2a] Age

_____ (Exact age)
Refuse to answer

[DM2b][For those who do not want to tell their exact age] Age interval [Interviewer can read out the intervals]

18-19
20-29
30-39
40-49
50-59
60-69
70 or above
Refuse to answer

[DM3] Education level

Primary or below
Secondary school (Form 1 to 3)
High school (Form 4 to 7 / DSE / the Diploma Yi Jin)
Tertiary, non-degree (including Diploma / Certificate / Associate Degree)
Tertiary, degree (including Degree / Postgraduate or above)
Refuse to answer

[DM4] Occupation

Executives and professionals
Clerical and service workers
Production workers
Students
Homemakers
Retired
Unemployed / non-workers / between jobs
Others, please specify: _____
Refuse to answer

[DM5] What is / are your child / children studying? [If more than one child, please record the education level of every child, multiple answers allowed, one of the children must be studying in kindergarten, primary school or secondary school]

Not yet entered school, _____child(ren)
Kindergarten, _____ child(ren)
Primary school, _____ child(ren)
Secondary school, _____ child(ren)
Tertiary, non-degree, _____ child(ren)
University, _____ child(ren)
Working, _____ child(ren)
Non-working and non-studying, _____ child(ren)
Refuse to answer

[DM6] Which of the following best describes your family's economic condition? [read out the first five options]

Very good
Quite good
Fair
Not quite good
Not good at all
Don't know / hard to say
Refuse to answer

[DM7] Which type of housing do you live? [p.s. please pay attention to the "rent / sublet / owned" conditions and the types of property]

Rent public housing
Sublet public housing
Self-owned public housing
Rent subsidised Home Ownership Scheme housing
Sublet subsidised Home Ownership Scheme housing
Self-owned subsidised Home Ownership Scheme housing
Rent private housing
Sublet private housing
Self-owned private housing
Others, please specify:_____
Refuse to answer

The interview is finished. Thank you for your time. Good-bye.