

## 4. QUESTIONNAIRE FOR PARENTS

### 4.1. Instrument

The parents of the sampled students were requested to respond to 8 questions on their beliefs on mathematics learning, 7 questions on their knowledge on the mathematics curriculum, 6 questions on the learning difficulties their children encountered, the year such difficulty arose and how they helped their children overcome these difficulties. They were also asked how much time per week their children spent on their homework in general and on mathematics homework in particular, the topics their children found most difficult and the number of hours they spent on helping their children with learning mathematics. An open-ended question was incorporated to solicit their comments on the current mathematics curriculum.

### 4.2. Sampling, pilot and administration

The respondents of the parent questionnaire were the parents of the students responded to the student questionnaire. Pilot testing was performed together with that of the student questionnaire and both questionnaires of the main study were administered simultaneously. Students were asked to take the parent questionnaires home for their parents to complete. The teachers helped collecting them and sending them back to the research team. The number of parents of P.3, P.6 and S.3 students responded were 2747, 2687 and 1019 respectively, making a total of 7453. The finalised questionnaires for the main study are shown in Appendices 17 to 19.

### 4.3. Results

#### 4.3.1. High regard for mathematics

In general, parents had a high regard for mathematics. They strongly agreed that (the mean value of the responses for P.3, P.6 and S.3 parents, across a 1-6 Likert scale were 4.72, 4.75 and 4.69 respectively) mathematics is significant to their children's climbing up of the education ladder. Parents perceived the influence of mathematics on their children's career as fairly strong (4.32/4.36/4.21) though not as strong as on children's future studies. The discrepancy could be explained by the fact that not many employers specifically require certain level of mathematics qualification when recruiting their staff.

#### 4.3.2. Views on the mathematics curriculum

As a whole, the parents' views were fairly positive. Parents did not feel that the

curriculum was too heavy (mean responses for P.3/P.6/S.3 were respectively 2.83/3.19/3.39) nor too much (2.75/3.0/3.26) for their children. They felt that the level of difficulty was appropriate (4.37/4.20/3.87). However, there is a trend that the more senior form their children were, the more reserved their views would be. Their responses to “My child doesn’t understand the mathematics problems s/he learns” (2.76/3.01/3.30) and “My child feels that mathematics is very difficult” (2.99/3.48/3.78) reflected similar views.

Parents felt that school teaching was the major source of their children’s mathematics learning (4.47/4.50/4.45) and parents’ influence on children’s mathematics learning dwindled in senior grades (3.51/3.67/3.83).

#### *4.3.3. Beliefs in mathematics learning*

Parents’ beliefs in mathematics learning were rather typical among Asian ones. Academic success was attributed to paying effort (4.37/4.31/4.23), consistent with what was found in literature (Hau & Salili, 1991, 1996). They strongly thought that practice makes perfect (5.19/5.06/4.85) and memorisation was seen as important in their children’s mathematics learning too (4.96/4.67/4.37), though the responses to these two questions dropped a little bit as the grades got higher.

#### *4.3.4. Perceived student difficulties*

Results show that as children proceeded to a higher grade, the higher the percentage they found difficulty in learning mathematics. It increased from 17.7% (P.3) to 28% (P.6) and then to 35% (S.3) (Q.6). Consistent with what was found in the students’ questionnaire, there was no specific year that the student suddenly faced a “crisis” in learning mathematics but the extent of their perceived difficulty increased continuously.

#### *4.3.5. Learning behaviour*

Students relied on family members in junior forms and gradually went for others as they moved up the grade levels. In P.3, 45.9% of the parents reported that they helped with the children and 20.2% of the parents referred their children to their elder siblings when children encountered difficulty in learning mathematics (total = 66.1%). In P.6, the figures dropped to 21.3% and 21.2% respectively (total: 42.5%) and in S.3, the figures dropped further to 8.2% (parent) and 17.1% (sibling), making a total of 25.3%.

Around 30% of the parents referred their children’s learning problems to their

private tutors/ tutorial classes (P3: 23.3%, P6: 33.2%; S3: 26.8%). More and more children were left to work out their problems themselves as they moved up the grade levels (17.3%/ 25.7%/33.2%)

These figures were in line with parents' answers to the question "Do you spare time to guide your children's mathematics learning ?". At P.3, 77.8% of the parents reflected that they (or their family members) taught their children mathematics at home. This figure dropped to 52.6% at P.6 and to 26.5% at S.3.

There could be a number of speculations to this drop of parental and sibling supports to children. Feeling that children were old enough to take care of themselves and a lack of knowledge to teach their children mathematics are some. Nevertheless, it is a bit worrying that 17.3% of young children (P.3) were left to face alone without any guidance when they faced learning problems. The time parents and family members spent on helping their children's learning problems decreased with age (Q.8).

#### *4.3.6. Learning problems*

At P.3, parents felt that their children's major problem in learning mathematics was that they were careless and did not know how to interpret the questions. The problems of "scared of mathematics", "loss of interest" and "lack of time" were of minimal importance.

At P.6, "carelessness" and "did not know how to interpret" were still the two major stumbling blocks, while those took "scared of mathematics" and "loss of interest" as reasons increased.

At S.3, "carelessness" and "did not know how to interpret" were still the two major problems, but "carelessness" had a significantly drop. Respondents to "loss of interest" and "scared of mathematics" increased slightly.

#### *4.3.7. Parents' knowledge of the curriculum*

The more senior the students, the more parents admitted that they did not have knowledge of their children's learning. The percentage of parents admitting not knowing their children's favourite topics increased from 9.2% to 23.1% and then to 46.9%, and those not knowing children's most disinterested topics increased from 13.4% to 23.1% and to 46.4%. Primary Three students' parents who indicated that they knew their children's interests on various topics said that the most

interesting topic for their children was statistical graphs (41.2%), and the topics their children disliked most were units of time, capacity and money (28.3%). At P.6, the perceived most interesting and disliked topics were statistical graphs (41.2%) and equations and its applications (36.2%), and for S.3, they were algebra (22.9%) and geometry (23.2%) respectively. Across the grades, statistical graphs remained one of the most favourite topics. This is quite consistent with students' own perceptions. Those involving tedious manipulations like units of time, capacity and money, as well as equations were least welcomed. Again, the finding is consistent with students' perceptions. However, there were some mismatches between children's and parents' perceptions. For example, geometry was seen as a difficult topic by parents but not by students. Conversely, algebra was seen as a favourite topic by parents but not by students.

Details of the results are shown in Appendices 20 to 22.

#### *4.3.8. Responses to open-ended questions*

In regard to learning in mathematics, parents were unanimously concerned with whether their children could understand the subject matter in class and maintain interest in mathematics. P.3 parents made much elaboration of these points. They saw that teachers played a key role in their children's learning in mathematics and they hoped to see improvements of their teaching. In particular, they anticipated more exercises should be given so that knowledge and skill could be consolidated, though some parents expressed that too much homework had made their children feel pressured. In many of the responses, parents mentioned the role of mathematics in the training of logical thinking and creativity in children and they really hoped that this important objective could be realized through careful planning in teaching.

Parents expected teachers to give clear, detailed, and step-by-step explanations in class. Teachers should emphasise thinking abilities and should focus on the concepts and principles behind mathematical calculations, so that students will master the way to approach problems. Teachers were anticipated to help students familiarise with the formulas and in the interpretation of word problems. Examples given should progress from easier to more difficult ones and teachers should explain the examples given in textbooks so that a clear linkage of what was taught in class and what was presented in textbooks could be shown. Teachers should also encourage student to raise questions in class. However, parents' views

on the activity approach were split. Some were supportive but some did not prefer it.

Most parents emphasised the value of drilling and practices. They considered practices and homework as essential. Some of them suggested that teachers should consider both the quantity and quality of practices. Setting too difficult questions would frustrate the students. In general, parents wanted to see that teachers give an appropriate amount of homework and that questions should promote thinking rather than repetitious work. Over-emphasis on correct answers rather than the steps was not conducive to conceptual understanding too. An interesting point was that some S.3 parents considered the amount of homework not enough. Parents also hoped for more time being allocated to mathematics lessons so that students could have time for better digestion of the materials taught and that teachers could handle students' learning difficulties.

Parents' comments on the textbooks were mostly negative. Some complained that there was incorrect information in the textbook as a result of careless proofreading. Other problems included: clarity in expression (especially in word problems), mismatching between pictures and text, lack of examples, and lack of a curriculum/content outline.

Another theme that stood out was parents' concern about their children's interest in the subject. Liveliness, relevance to daily life, gearing the level of difficulty according to student's standards, diagnosing student learning from time to time to see whether they really understand, use of suitable teaching materials including pictures, real objects, ETV and computer programmes were some of parent's suggestions to this end. At S.3, parents suggested teachers to provide tutorial classes after school and to allocate questioning time for the students within class periods. They also reflected that students' interest in the subject was strongly related to the personalities of teachers. Enthusiasm, patience and eagerness to lend a helping hand were important. Compared with parents of primary school students, parents of S.3 students were asking for more teacher guidance in helping their children's learning.

In P.6, the issue of the curriculum became more salient. Parents' views on whether the current P.6 curriculum was too difficult were diverse. However, most parents thought that the present curriculum had adverse impacts on students' understanding in the subject. Inflexibility, contents perceived as too fragmented

and lack of continuation with secondary mathematics were some of their general comments on the curriculum. Another important concern was that many P.6 parents felt disturbed by the large amount of time allocated to prepare for the AAT problems in regular teaching. Some of the parents found that this made the P.6 mathematics curriculum very examination-oriented. Some parents also found the numerical reasoning questions too difficult and irrelevant to the regular curriculum. P.6 parents also found homework too heavy and over-emphasised on drilling without much variation.

Those who found the curriculum difficult described it as being “too difficult,” “too heavy,” “too packed,” and “too broad”. In addition, they commented that there was inadequate consideration on children’s level of intellectual development, insufficient emphasis on mathematical thinking, and over-emphasis on computation in the present curriculum. Some parents made comments on specific topics too. They found the topics of circle and circumference, and interest rate difficult which should be removed. Some parents thought that problems of decimals, and multiplication and division of fractions should be simplified. Some parents found directions and angles, rate, and polygon impractical.

Parents who found the curriculum too easy thought that the curriculum lacked an in-depth focus on each mathematical concept and should prepare the students for secondary level study. One parent suggested the incorporation of historical stories to arouse students’ interests.

The comments of S.3 parents on the current curriculum were mostly negative. They found the curriculum too difficult and too packed, emphasising too much on computation rather than conceptual understanding, logical thinking and application. They suggested adding more practical topics like skills in accounting. While one parent suggested going back to the old division of mathematics into algebra, geometry and trigonometry, another parent found these topics too difficult. Some parents were concerned about the language barrier in learning mathematics.

#### **4.4. Summary**

As in the case of students, parents showed a high regard towards mathematics. In general, they were positive on the current curriculum though some reflected that it was too packed, especially in P.6 and S.3. Parents held a traditional view on the learning of mathematics. Attributing academic success to effort and believing in

practice were common among them, though they repeatedly mentioned the role of mathematics in the enhancement of thinking abilities and conceptual understanding. They perceived carelessness and inability to understand questions as the major learning problems among their children. A likely reason why so many parents saw “carelessness” as a difficulty their children encountered is that they did not allow children to make mistakes. Making careless mistakes was simply common among children, in particular the younger ones. Another possible reason is that children had not really grasped the concepts.

“Did not know how to interpret” reflected that students did not have a clear concept of the contents and skills taught. If students not only master the ways of calculation but really understand the concepts, they should be able to interpret the meaning of questions and tackle them. There was a tendency that both students and parents resorted to rote learning and believed that knowing calculation procedures would finally help them solve the mathematical problems.

Most parents devoted time to helping their children’s revision and homework but a higher proportion of parents reflected that they did not have adequate knowledge of the curriculum as their children moved up the grade levels. Thus there was a tendency to rely more on traditional ways of helping their children such as giving them more exercises at higher grade levels.

Results in the open-ended questions revealed that understanding and interest were the two major concerns of the parents about their children’s learning. Clear explanation of the teacher, motivating the interest of the students to learn, raising the liveliness of learning, using a variety of teaching methods and materials, concern about the students, eagerness in helping the students, provision of exercises gearing to the standard of the students, and frequent checking of whether the students understand were recurrent themes that appeared in parents’ responses to open-ended questions. Such qualities of a good teacher were quite consistent with what students longed for as reflected in the students’ questionnaires and interviews. Comments on the textbooks received in the open-ended questions were basically negative, and preparation for AAT was perceived as interrupting regular teaching.

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