

PRIVATE TUTORING IN MATHEMATICS: THE MAURITIAN EXPERIENCE

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ABSTRACT

Private tutoring is a very common practice at all levels of the educational landscape in Mauritius, particularly in a high profile subject such as mathematics. In this study data about the practice of private tutoring in mathematics at the secondary level were collected from several stakeholders, amongst others teachers, students, and parents. The investigation specifically focused on the reasons for taking private tuition, the actual organization of typical tuition sessions and the knowledge and skills acquired during the private tuition sessions. An analysis of the data revealed that private tuition in mathematics is not only taken by weaker students in the subject but by students of all abilities. The reasons for taking private tuition in mathematics ranged from improving performance in the subject to being forced by parents to do so, as it is a common practice. The most common practice by individual tutors was to complete the prescribed examination syllabus, independent of the school work done by the students. The private tuition sessions generally followed a standard

procedure. Students claimed that they depended on the private tuitions to do better in mathematics.

Key Words: tuition, private tuition, private tutoring, extra school instruction

In the context of globalisation and ensuing competitive environment, there is an increasing demand for quality education in all countries. The formal educational systems in most countries are under huge pressure to utilise optimally the scarce available human and financial resources. The benefits of education can mean the difference between a high-paying job and consequent success or missed opportunities and a resultant failure in life. The high premium attached to education in the modern society has led to a stratification of individuals based on their educational backgrounds, thus creating a strong competitive environment within each individual country's educational system. Parents in their attempt to provide their children with the best opportunities in life have resorted to private tutoring as "...a means of retaining a relative advantage for their children in the education race" (Foondun, 2002, p. 491). Private tutoring is also called "private tuition" in some English-speaking countries (Bray, 2003, p. 13). Private tutoring is now an international phenomenon present in most countries alongside the formal educational system to various levels of sophistications. So, what is private tutoring?

Many terms have been used to describe what is private tutoring. Bray (2003) used the term *private supplementary tutoring* (PST) and he defined it as tutoring in academic subjects (such as languages and mathematics) that is provided by the tutors for financial gain, and is additional to the provision by mainstream schooling. It does not include extra-curricular subjects such as soccer and ballet, and it does not include extra lessons given by teachers or family members on a voluntary basis. The important points to note are that PST is given for some form of pecuniary gain, in academic subjects and generally outside school hours.

Highlighting these components, Foondun (2002) has used the term *private tuition* and defined it as extra coaching in academic and examinable subjects that is given to students outside school hours for remuneration. On the other hand, Wolf (2002) who was writing about the Third International Mathematics and Science Study (TIMSS) used the term *Extra School Instruction* (ESI) to denote teaching and coaching activities in mathematics and science taking place outside of the regular school structure. It excludes extra help given to students by teachers under the auspices of the school. Following from these descriptions of private tutoring, private schools can be excluded from the category of PST, although private schools constitute an aspect of private education.

PST is found in both rich and poor countries and exists as a *shadow* education system (Bray, 2003). Bray claimed that the metaphor of shadow is appropriate for PST since: (1) PST exists because of the mainstream education exists; (2) as the size and the shape of the mainstream system change, so do the size and the shape of PST; (3) in almost all societies much more attention focuses on the mainstream than on its shadow; and (4) the features of the shadow system are much less distinct than those of the mainstream system. It is also claimed that PST is more evident in systems in which success in examinations can easily be promoted by investment in PST; and PST becomes more necessary in systems which are teacher-centred rather than child-centred, and which are intolerant of slow learners. Bray clearly pointed to the situation in many East Asian countries such as the Republic of Korea, Japan, Taiwan, Hong Kong and Singapore where the highly competitive educational systems have co-existed with various forms of private tutoring. Bray also reported a few studies which claimed that Asian cultures influenced by Confucian traditions place a stronger emphasis on effort when compared to western societies which place stronger emphasis on ability. Hence, PST can be considered as a means for students to make a greater effort in learning a subject.

In Mauritius, Foondun (2002) pointed out that PST has reached epidemic *proportions*. This is a serious matter for consideration. A UNESCO Report deplored the fact that PST existed as a parallel system of education (UNESCO, 1976). Alarmed by the gravity of the situation, the Mauritian Government commissioned a study on private tuition in 1986 by the University of Mauritius. The study found that, in a time of difficult economic challenges, as many as 11% of Primary 1 students and 73% of Primary 6 students were taking private tuition (Joynathsing, et al., 1988). Although, the study highlighted many ills of PST, very few concrete policy measures were introduced. Unfortunately, the proportion of students taking private tuition has steadily increased. Foondun (1992) stated that as many as 70% of primary school teachers were giving private tuition. Several studies have highlighted the issue of PST in Mauritius (see UNESCO, 1976; Foondun, 1992, 2002; Bray, 1999, 2003). However, the studies have been more descriptive of the situation prevailing in the country rather than focusing on the providers and consumers of PST. Thus, PST has remained a fairly closed domain. The present study aims at exploring a little more the phenomenon of PST in Mauritius with a stronger emphasis on one academic subject, namely mathematics, and the reasons for taking private tuition, the actual organization of typical tuition sessions and the knowledge and skills acquired during the private tuition sessions.

BACKGROUND

Mauritius is a small island, having an area of about 1 865 square kilometres. It is found in the Indian Ocean in a group of islands called the Mascarene Islands and is about 2000 kilometres off the south east coast of Africa. The country, a former British colony, became independent in 1968 and became a Republic in 1992. The country now has a presidential democracy modelled on the British system. The population of Mauritius is a unique blend of different races, cultures and religions as Mauritians are descendants of immigrants from India, Africa,

Europe and China. Latest estimates give the population to be 1.2 million. The constitution groups the population into four categories: Hindus (51%), Muslims (17%), General Population including Catholics and Anglicans (27%) and Chinese (5%). The official language is English and is the language of instruction, but French is a more popular language in the country whereas Creole is most widely spoken. There are many other oriental languages such as Hindi, Urdu, Tamil, Telegu, Marathi, Arabic, Gujrati and Mandarin that are also part of the language folklore. The Economic Review 1996 produced by the Economic Analysis and Research Section (EARS) of the Ministry of Economic Planning and Development highlight the four major pillars of the economy as being the manufacturing, tourism, sugar and the emerging financial sectors. The literacy rate is above 84.4% for the population above 15 years of age. The per capita GDP is 12 027 USD with a Human Development Index (HDI) of 0.800 and Human Poverty Index (HPI) of 11.3 (see UNDP, 2006).

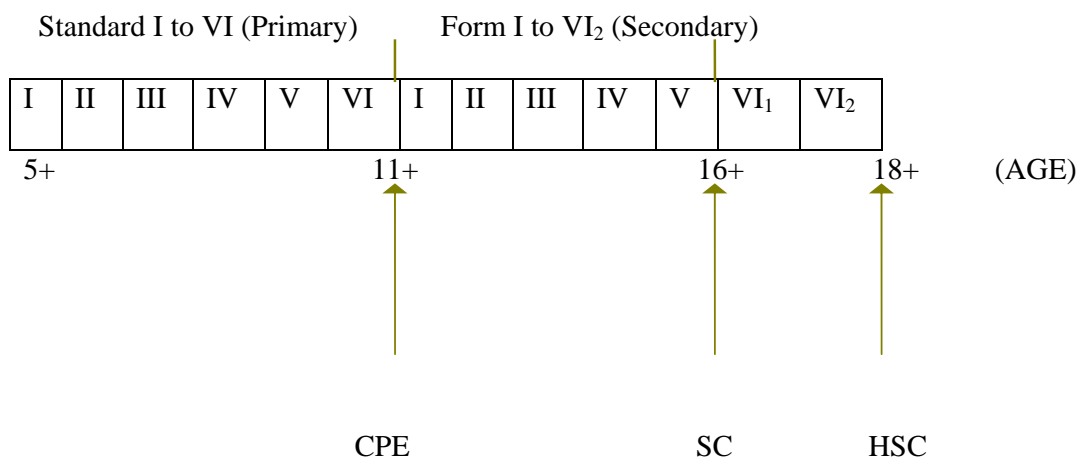
The Education System

Education is free at all levels (Pre-primary to Tertiary) and is compulsory at primary level. As a former British colony Mauritius has its educational system based on the traditional 6-5-2 system of the UK, that is six years of primary education, five years of secondary education and a further two years of higher secondary education. According to the Education Statistics (2004) there were 289 primary schools in the Republic of Mauritius with 276 in the island of Mauritius and 13 on the island of Rodrigues of which 220 are administered by the government and 51 by the Roman Catholic Education Authority (RCEA), 2 by the Hindu education Authority and the rest were private unaided schools. A total of 126 226 students were enrolled in primary schools in 2004. Students aged 5+ enter the primary school usually after at least one year of pre-primary schooling. They spend six years of compulsory education, from Standard I to Standard VI, and then take the Certificate of Primary Education

(CPE), a highly competitive and selective examination. Successful students then move to the secondary schools, based on their performance in the CPE examinations.

The corresponding statistics for the secondary sector mentioned 170 secondary schools, 170 on the island of Mauritius and 6 in Rodrigues, of which 67 were State Secondary Schools and the rest private secondary schools (including confessional schools). In 2004 there were 105 988 students enrolled in secondary schools of which 32% were in the state schools. There were 6 396 teachers employed in the secondary schools. Teachers in the secondary sector have qualifications ranging from school certificates and Teacher's Certificates teaching lower forms to degree holders together with professional qualifications teaching up the HSC level. Teachers at the HSC level teaching mathematics are predominantly males, but in recent years a substantial number of female teachers holding degrees are teaching the subject at this level.

Successful students from the primary spend their first five years, from Form I to Form V, preparing for the Cambridge School Certificate (SC) examination (O-Levels). Students who successfully complete the SC examinations have the possibility of studying for two further years, at the end of which they sit for the Cambridge Higher School Certificate (HSC) examination (A-Level). Figure 1 below shows the formal educational system in Mauritius. Students who complete HSC leave school after 12 years, aged about 18 years, after which they go to universities either locally or abroad. The best candidates at the HSC examinations (Laureates) are awarded State Scholarships for higher studies abroad. This makes the whole system a highly competitive one and consequently there is a lot of emphasis on drill work for examination. This has unfortunately led to the running of a parallel system of education in the form of private tuition, which is in fact, institutionalised right from the primary level. It is really hard to find a secondary student in the higher forms who is not taking private tuition.



CPE - Certificate of Primary Education
 SC - Cambridge School Certificate
 HSC - Cambridge Higher School Certificate
 VI₁ - Six One (Lower Six or first year HSC)
 VI₂ - Six Two (Upper six or second year HSC)

Figure 1: The Mauritian Education System

Mathematics at the Secondary Level

The teaching of mathematics at this level is geared towards meeting the requirements for the Cambridge School Certificate (SC) after five years of study or the Cambridge Higher School Certificate (HSC) after a further two years of study. At the SC level students can opt for either the mathematics syllabus D which is taken by most students or the core mathematics syllabus A, taken by a much smaller group of weaker students. Syllabus A is examined on a limited part of the normal syllabus D paper. Around 25% of all students taking mathematics at the SC level fail (grade 9) and if those getting a pass (grades 7 or 8) are to be considered as near failures then we have around 50% of all students taking the SC examinations failing to secure a reasonable level of performance in the subject (grades 1 to 6). Students at this level also have the opportunity to study Additional Mathematics. This is an examination which is intermediate between an O-level and an A-level. At Higher School Certificate (HSC) level, mathematics is the most popular principal level subject (students usually take three principal subjects and two subsidiary subjects at HSC level). Very few students opt for

Further Mathematics, which is a more advanced syllabus of A-level mathematics. Some students take mathematics as a subsidiary subject at the HSC level. This paper used to be the same as the Additional mathematics paper of the SC examination but is now a different paper. Thus, we find that mathematics enjoys a very high status among the school subjects and indeed the subject is practically compulsory at the SC level. Failure in mathematics at secondary level is synonymous with failure in the secondary education, as the subject is a basic requirement for all jobs that are advertised.

METHODOLOGY

In this qualitative study, data about the practice of private tutoring were collected from several stakeholders, amongst others teachers, students, and parents. In all 20 teachers, 28 students, and 5 parents participated in the study. The sample for teachers, students and parents was a convenience sample as many of them were not willing to talk about private tuition openly. The stakeholders were asked to fill in a survey form. Through the survey form for teachers, reasons for giving private tuition, the general organisation of a typical tuition session, how the tuition sessions related to the work done at school level and other similar issues about private tuition were sought. Further clarifications were also obtained through a semi-structured interview with the university with a few teachers. The sample of students were asked to fill another survey form related to reasons for taking private tuition in mathematics, how private tuition help in understanding of mathematical concepts, the general organisation of a typical private tuition session and other related issues to private tuition. The opinion of parents on this important issue was also sought through semi-structured interviews.

TEACHER SURVEY AND INTERVIEWS

The focus of the interviews with the tuition providers was on the general organisation of the private tutoring sessions. The teachers who were interviewed gave private tuition at various secondary levels, ranging from Secondary 1 to Secondary 6 (HSC).

Why do you give private tuition?

The most common reason was that PST was a source of revenue and also that through private tuition the teachers wished to get more practice and experience to become a better teacher.

The teachers also claimed that another reason was to help the weaker students to catch up on class work by completing the syllabus and giving these students more opportunities to practice harder problems not covered in class. One teacher said that giving private tuition was a *noble cause*.

How many students are there in one of your typical tuition sessions?

Only one teacher mentioned giving tuitions on an individual basis a few times. Otherwise, most of the teachers interviewed gave tuitions in groups ranging from 2 up to 20 or more.

However, the teachers claimed that although they gave tuitions in groups they made an effort to give individual attention to each student. The teachers claimed that they helped the students by giving them individual feedback but also addressing some of the common difficulties at a general level.

Duration, Frequency and Venue

Most of the teachers interviewed claimed that the average time for one tuition session was 1½ hours weekly at their own residence. Only two teachers used a different venue from their residence.

Generally, how is a typical session organised?

Most of the teachers stated that their sessions started with the correction of homework which ranged from anything between 20 minutes to an hour depending on the amount of homework

given. This was followed by some explanation of a portion of the syllabus followed by some form of practice, which the teachers called class work. Some of the teachers also allowed for questions and answers in the later part of the tuition session.

What is the focus of your tuition session?

The most common response from the teachers was that they aimed at completing the syllabus and that they taught everything again from scratch irrespective of what was covered in school. There were very few comments about focusing on students' difficulties or preparing them for examinations.

For your tuition sessions, do you use any particular textbook or do you rely on your own notes?

The general response was that the teachers relied on their own notes. The textbook was used only for practicing problems and for homework. The teachers mentioned using the past examination papers for drilling purposes. The teachers did not use other resources except for diagrams on the board or some real-life examples.

To what extent do you focus on the understanding of concepts?

All of the interviewed teachers claimed that their emphasis was to make students understand. One teacher claimed that "To a great extent because if students do not understand the concept then problem solving will be difficult".

What is the emphasis you give to drill and practice?

The general agreement among the teachers was they emphasised a lot of drill and practice. One teacher claimed "Very much emphasis on practice because practice makes perfect". Some of reasons that the teachers gave for emphasising drill and practice was that it improved the problem solving skills of the students.

Do you venture outside the prescribed syllabus or do you strictly adhere to the syllabus requirements?

Only one of the teachers claimed that he sometimes ventured outside the syllabus, otherwise all of the others claimed that they restricted themselves to the syllabus. One teacher strongly pointed out that “I adhere to the syllabus because those professionals who have set up the syllabus must have thought properly about the needs of students. Why venture outside to confuse students more?”

What do you do if students do not complete their assigned homework?

All of the teachers mentioned using some form of coercion like: giving verbal warnings, sending a note for parents to sign or asking the students to do the homework on the spot in front of them.

In which ways do your tuition sessions complement or supplement the work that students do in schools?

The teachers’ comments again hinged on the idea of not enough practice in school work as their main point. There are comments also about more personalised attention and completing what is missed out in class.

On average how many hours of individual work, including homework, does an average student have to do for each of your tuition sessions that he or she attends?

The responses varied from 30 - 45 minutes to 2 hours per day. One teacher claimed that, “I usually give about 30-45 questions on the explanations done in one class with selected questions from past exams or part of them. The student has to attend to them before coming to class”.

Other related issues and comments

Generally, there were not many disciplinary issues except for lateness, answering to hand phones and bullying. Two interesting comments were made by the teachers during the interviews. One stated that “Private tuition should be banned. As students leave school, they attend private tuition and then once at home start with homework. There fore, they have not

got enough time to relax and for distraction”. The other one claimed that “It is not a fact that all children should go for private tuition. Only those encountering difficulties should opt for it. However, it is becoming a culture for all students to go for tuition and this is not good”. Teachers complain that it is quite difficult to get the attention of students and maintain their interest in class because of private tuition. The students tend to value their work in tuition classes much more than what they do in schools. The students show greater confidence in their private tutors compared to their school teachers.

STUDENT SURVEY

On the whole students acknowledge the contribution of private tuition in their learning process. They claim that private tuition teachers are the ones they can choose unlike their classroom teacher. The students mention that their choice of private tutor is based on the recommendations of their parents or peers. The greatest advantage of having a private tutor is that they have somebody to discuss their difficulties on an individual basis and the opportunity to practice more problems. However, they acknowledge that this advantage ceases when the private tuition classes are big, at times as big as their normal classes, if not bigger. Most of the students noted that the whole syllabus is covered but emphasis is laid where the students encounter problems. The last few months before the examinations are devoted to the practice of problems from past examination papers. One concern raised by students from *State Schools* is that their teachers keep on changing and this hampers their learning of mathematics to a great extent. The students see private tuition as enhancing their learning of mathematics because they have an opportunity to redo topics taught in schools. As one student stated: “When I do something in school and afterwards in tuition, I understand it better as I obtain double explanation and also different ways to solve a problem”. Another

student commented on the quality of the explanations: “Even though we do almost the same thing at school we get better and simple explanation in tuition”.

PARENTS INTERVIEWS

Parents showed much concern about the situation prevailing in schools. They claimed that private tuition is important in this competitive world of today because one way to progress and climb up the social ladder is through education. They claimed that they will do anything to make sure that their children get all the facilities that they themselves did not get. Much of the concern also centred on the fact that mathematics is a key subject in the school curriculum. A certificate without a good result in mathematics is not very valued. Furthermore, the parents claimed that mathematics is a subject in which they could not help their wards as they themselves were not confident in the subject at this level.

Regarding the choice of the private tutors, the parents claimed that normally they are the ones who made the choice for their children. They generally based their choice on advice from other parents, *popularity* of the teacher or feedback from other sources. They agreed that at times their children suggested the names of the teacher but then the final choice was theirs. The parents also mentioned that they met the private tuition teacher regularly to have feedback on the progress of their children. While acknowledging the fact that PST contributed to the mathematical achievement of their children, the parents pointed out the fact that provision of PST to their children had important financial implications for them. The interviewed parents claimed that on average their children took PST in as many as five subjects.

DISCUSSION

PST is not something new in the Mauritian educational landscape. Foondun (2002) reported PST practices as far back as 1889 when education was not available to everybody. However, the “epidemic proportions” are of a more recent origin, accentuated by the advent of free education from 1977 at all levels. Data on PST are not readily available as the main stakeholders are very cautious to make any statement that may jeopardise their relative benefits. Joynathsing et al. (1988) had reported that mathematics, alongside English, was the prime subject in which students at the secondary level took private tuition. Mathematics is a popular subject for PST not only in Mauritius, but also in other countries such as Kuwait as highlighted by Hussein (1987).

The data reported in this study show that the prime reason for teachers to give private tuition in mathematics is to gain extra revenue whereas for students it is get more practice and more individualised attention. It is difficult to imagine how a private tutor could complete the whole syllabus in 1½ hour-sessions on a weekly basis with the same depth as the regular school teacher. From the data it is quite obvious that the teachers have at the most one hour of the tuition time per week for developing a new topic. Focusing on the understanding of concepts and at the same time allowing for enough drill and practice can be extremely challenging. Even more so, it is hard to imagine how the private tutors could manage to give individual attention in the large groups that they tutored. Foondun (2002) termed this as the irony of large classes.

The teachers in this study reported that students required at least 1 hour of individual work a day for attending one private tuition session. For most students this implies a heavy work load on top of their regular school work and PST in other academic subjects. Foondun (1992)

referring to primary students had already questioned the appropriateness of the long hours for students when adults have achieved a standard seven-hour day working day.

Besides remediation, the students claimed that they chose PST because of enrichment. However, analysis of the data from the Third International Mathematics and Science Study (TIMSS) carried out in 1995 by Wolf (2002) showed that except for Japan at Population 1, students with no Extra-School Instruction (ESI) performed better in mathematics. Also, except for Hong Kong, Korea, Latvia, and Romania at Population 2, students with no ESI performed better. Wolf also claimed that ESI tend to be used more for remediation than enrichment. This is an important fact in the international data from TIMSS. If students with no ESI are doing better then one question to be asked is: To what extent is ESI necessary for students. Additionally, it is interesting to note that ESI is a common phenomenon in all participating countries. No country showed an absence of ESI. This attests to the international nature of the issue of private tutoring.

The students claim for individual attention and more practice problems seem to be the guiding principles for taking private tuition in mathematics. Although academic excellence can be an outcome of PST, the long-term effects of bypassing the normal route may sow the seeds for unpleasant social problems later. The fact that not only students from rich families but also those from poorer families are resorting to PST attest to the fact that the benefits of free education are eroded and social inequalities may widen the gap between rich and poor. Teachers engaged in providing PST do not see it as being "...an act of corruption" (Biswas, 1999, p. 223), neither do parents and thus there is an "ambivalence of attitudes from both parents and students toward private tuition" (Foondun, 2002, p. 504).

CONCLUSION

PST is now ingrained in the Mauritian psyche. With no data on the magnitude and effects of PST in the country, policy decisions about the issue have been very episodic and very general. Bray (1999) had identified six basic approaches by policy makers of different countries regarding PST: a laissez-faire approach; monitoring, but not intervention; regulation and control; encouragement; a mixed approach; or prohibition. In Mauritius, it seems that there is very much a *laissez-faire* approach. The shadow system has grown out of proportion and is now posing a challenge to the regular formal system of education. Students taking private tuition are neglecting school work and the value system is such that the work done by private tutors takes precedence over the work done by regular teachers in schools.

It is well-known that mathematics is not an arm-chair subject. One needs to understand concepts and be able to use and apply mathematical principles in problem solving. If students are not interested in school work, then it is a wake call to the formal system to address issues about the policy, curriculum or pedagogy. As mentioned earlier, PST thrives in a competitive environment, so what can be done to make the education system less elitist? What can be done to make the system more supportive of slow learners?

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