

## Putting English Into The Equation: A Mathematics Teacher's Dilemma.

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<p>Lim Chong Hin started his teaching career as a mathematics school teacher for 5 years. He then became a mathematics lecturer at a teachers training college for 19 years. Currently he is attached to the University Pendidikan Sultan Idris, where he is lecturing Research Methodology and Mathematics.</p> <p>Lim Chong Hin received his B.Sc (Hons) in Education from Universiti Sains Malaysia, M.Ed from Exeter University, UK and PhD from the University of East Anglia, UK</p>	<p><b>ABSTRACT</b></p> <p><i>Based on an ongoing study, this paper describes and analyses the dilemmas experienced by one teacher in implementing the reform to teach Form 1 mathematics in English in one rural school. The teacher's resolutions to the dilemmas highlight the notion of how schools change reform and the key role played by the local context in shaping reform. The resolutions have a major influence in structuring the pedagogy the teacher adopts while providing some insights into the challenges of implementing the reform.</i></p> <p><i>I suppose a good way, as any to start this paper is to outline its structure. The paper begins by briefly introducing Mr R, the school he teaches, and his approach to mathematics teaching. The aim here is to provide some contexts to aid understanding the next part of the paper, which is a description of Mr R's efforts at teaching mathematics in English, his feelings and thoughts about them, including the dilemmas he went through. The paper then embeds the description in a wider context, encompassing the policy that impacted on the medium of instruction Mr R uses and the relevant literature that can assist and challenge our thinking concerning how Mr R implements the policy</i></p>
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### The Contexts

I first met Mr R when he enrolled as a part-time student on a post-graduate mathematics education course I was teaching one semester ago. I found him to be an engaging person, and of those who have met him, only a minority, I suspect, would not find him to be so. The school where he teaches, SMK Sawit, as you probably have guessed, is located in a large oil palm estate. To get to it, you have to travel several kilometres on a narrow, tarred road which branches off a Federal road. On the way, you will find it is not uncommon to pass some motorcyclists not wearing safety helmets or with such a boyish look as to make you wonder whether they have a driving licence. The school mainly serves a community of FELDA settlers - almost all the students at the school are the settlers' children. That said, the teachers felt that the school has done well academically. Measured by the PMR and the SPM results, it is one of the top, non-boarding rural schools in the country.

Mr R teaches mathematics to two classes of Form One students, Form 1A2 and Form 1A4. As he has been teaching the subject since 1995, he is an experienced

mathematics teacher. That year also happens to be the year he joined SMK Sawit. This makes the secondary school the only one he has worked in so far. Mathematics, as Mr R sees it, is about getting answers, preferably fast. His approach to teaching the subject is primarily behaviouristic. Hiebert & Lefevre (1986) would likely view the sort of mathematics he teaches as 'procedural mathematics' where great emphasis is placed on memorization and rote learning. Put another way, in Mr R's class, rules-without-reason mathematics dominates.

"I am happy". he said, "as long as my students can understand, can get the answers". What he meant by 'understanding' is that his students can work out the solutions to the questions he gives using the algorithm (rules) he has taught them. When I sat in his class, there was little evidence that the way he taught the subject was consistent with the educational goals the National Council of Mathematics Teachers (1989) in the United States wants mathematics teachers to commit themselves to:

... (1)that they [students] learn to value mathematics, (2) that they become confident in their ability to do mathematics, (3) that they become mathematical problem solvers, (4) that they learn to communicate mathematically, and (5) that they learn to reason mathematically" (p.5).

Mr R measures his effectiveness as a mathematics teacher in terms of how well his students do in tests. He selects the test questions he sets from a number of sources, from revision workbooks to test papers from other schools. However, whichever source he chooses from, it matters to him that it must be of 'PMR standards'. Not surprisingly perhaps, as a mathematics teacher, he sees his main goal as enabling his students to do well in the PMR mathematics paper although the paper is still a long way off for them to sit. There are two main reasons undergirding his goal, and both have to do with reputations. One concerns the school's academic reputation that, according to him, the school's headteacher is anxious to maintain. "HM dia tak peduli [how I teach] as long as the results are good" he said. Another has to do with upholding his own reputation as an effective mathematics teacher.

### **Implementing The Policy**

When I began doing my fieldwork at SMK Sawit, it was already October and Mr R has had nearly a year's experience teaching mathematics in English. Given that he is comfortable with the English language - his headteacher felt that there was no necessity for him to attend the ETeMS course - the main difficulties he experienced were in getting his

students to understand his explanations and instructions. The difficulties appear to take a toll on him. The subject, he says, is difficult enough for his students to learn in BM, let alone in English, especially the less able .

"Tak boleh hafal sesuatu rumus, sifir. Macam pelajar baik boleh tetapi pelajar lemah tu dia kurang sikit lah, dia tak berapa pandai. Macam sifir, sifir 2 pun, dia lebih suka tengok buku, dia bukan hafal. Dia tahu tapi dia tak percaya dengan apa jawapannya. Macam dia tak confident dengan jawapan dia. ... Macam rumus  $2nj$ , dia tak tahu apply  $2nj$ .

Dia berhenti di situ saja. Tak tahu apa  $j$ . [Jika diberi]  $2nj = 44$ , tak boleh cari  $j$ . Direct [cari lilitan jika  $j$  diberi], boleh. Dia punya basic yang menjadi masalah. Mereka dah lupa.  $22.01 + 7$  pun tak boleh selesai. Beri jawapan 22.08.

As for the more able students, he observes that they find it difficult to understand the questions posed in English, especially word problems which require them to draw out key information from the situations given prior to bringing their mathematical knowledge and skills to bear to solve the problems. As he puts it, "Tengok saja soalan dalam Bahasa Inggeris, dia tak nak buatlah" To lessen the difficulties faced by his students, the approach he adopts is to use BM to explain the meaning of the English words under consideration.

"Contoh 2 percent of two ringgit. Bila nampak 'of' maksud 'daripada', jadi [ajar murid guna] darab. Increasing [dalam konteks arrange the numbers in increasing order], menaik. Decreasing, menurun. ... [Satu contoh lagi ialah arahan membuat latihan dalam Bahasa Inggeris] 'Write the following decimals in words'. Arahan [ini kena] explain in BM. Write means apa? Tulis. Words means perkataan. ... Mereka akan cuba bila kita terangkan. Arahan have to explain in BM, Both BM and Bahasa Inggeris. Jika tak buat, dia tak faham arahan [maka tidak boleh buat latihan kerana tidak faham arahan]. Ada arahan guna 'express' [the following decimals in words]. 'Express' [yang] dia tahu [ialah] bas ekspres".

As a result, he adds, for each lesson, on average he teaches 70% in English for Form 1A2 and 30% only for Form 1A4. Much of that time is spent doing "terjemahan" as he puts it. Given his test-based goal mentioned earlier, what worries him, and one dilemma he faced is that the terms and words in English he uses in class maybe different from those used in examinations. For instance, he says, his students may

understand what "Find the sum of ..." means after being told in class but will likely face difficulty figuring out the meaning of "Find the total of Under the circumstances, he emphasises that

"We never stress on grammar. The problems faced by the teacher are not grammar or pronunciation. Problem is students do not understand what they are supposed to do. If I correct grammar I already be an English teacher, not a mathematics teacher because my purpose is I am going to teach them [mathematics]. They must understand what I am teaching, 'either in bahasa or English. I am using my grammar but whether they are, whether they are using or not, I cannot see because not everybody answering the questions. ... They never talk in English at all. When you ask in English, they will answer in Malay. I would be happy if they just understand. I don't care about grammar."

Mr R is clear about where his priority and his accountability lie: mathematics. Despite talk about globalisation and economic competitiveness, as far as he sees it, language is secondary. As he puts it, "They don't know how to say [in English] also I don't care but [as long as] they know  $2 + 2$  is 4."

### **Making Sense**

The literature on using policy to bring about change in education is vast. Policy seems a chief agency for changing what happens in classrooms. Yet teachers are the chief agents for implementing any new instructional policy. They are the most important agents of instructional policy (Cohen, 1989 and Lipsky 1980). In Mr R's case, under him his students' English will not improve unless he uses it to teach. But, using English to teach requires him to make adjustments, and the amount of adjustments he is willing to make is shaped more by concerns immediate to him than by concerns raised elsewhere. While others may think otherwise, in his view, he is implementing the policy. It is in this sense that Tyack and Cuban (1995) talk about hybridisation occurring when policy gets implemented. It is also in this respect that McLaughlin (1987) argued that change cannot be mandated.

Grand plans are a common feature in the literature on using policy instruments to change classroom practice, but so are reports of failed reforms. Indeed failed efforts to change teaching and learning are an old story. Despite numerous efforts, classrooms change only a little, researchers say (Cuban, 1984). Some analysts explain these



dismal tales with reference to teachers' resistance to change. Entrenched classroom habits defeat reform they say. Others report that many innovations fail because they are poorly adapted to classrooms. There are some important lessons to be learned here. The question is, how much are we willing to learn?

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