

CHAPTER 3

THE TRANSITION EXPERIENCE OF IMMIGRANT SECONDARY SCHOOL STUDENTS: DILEMMAS AND DECISIONS

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1. INTRODUCTION

Being an immigrant school student in a new country is a difficult matter. Language problems predominate, compounded by not knowing which other students to trust in the school, not knowing the school rules (except that you know there are likely to be many school rules), and not knowing the teachers:

Interviewer: How good do you think your teacher thinks you are?

Tra: I don't know, no idea. It is hard to know what the teacher thinks.

The social pressures on the students are immense. As well as their own self-imposed pressures to survive in the new environment, there are pressures from their parents who may be ultimately dependent on their ability to earn money for the family. There are the usual learning and assessment pressures from their teachers which although well-meant, are not always well-received, and there might also be the less well-meaning pressures from some of their peers who may not be willing to accept them into the social milieu of the classroom or the school.

These social pressures are exacerbated by the cultural conflicts experienced by every immigrant person, but particularly by immigrant students. It is a particular problem for students because of the predominantly cultural nature of schooling. Education is a process of cultural induction, and schooling is the formal instrument of the induction process. As an immigrant bus driver or nurse, one might well be able to 'slip into' the same job in the new country, as many occupational practices are similar from country to country, although there too will be cultural differences causing conflicts and anxieties. Schooling, although superficially similar in different societies, differs markedly in its cultural framing.

Moreover, whilst for a bus driver or nurse the expectations of society for the newcomer will almost certainly be spelt out (if only for health and safety reasons) there is no such provision for the immigrant school learner. There will probably be some

descriptions of aspects such as the appropriate clothes to wear, the books and materials needed, the times of the school day, the sports provisions etc. No-one though describes how one is supposed to operate in the new learning environment, which other students to pay particular attention to in class, the new social niceties of how to make friends, or which rules are to be obeyed and which are negotiable. It is never written down which teachers are particularly sympathetic to the plight of the immigrant student, or which ones are to be avoided. There are no manuals explaining what counts as an acceptable reason to be late for class or not to have done the homework, or how much work needs to be done in class. These are all part of the hidden curriculum of the school and classroom and are necessarily never written down. But students who have ever been to school before know just how important the knowledge of such hidden 'rules' is.

This chapter is especially concerned with analysing aspects of the transition experience of immigrant secondary school students in their new mathematics classes. Learning mathematics in school classrooms is a particular kind of mathematical practice with its own criteria and rules. It is not simply a matter of learning mathematics with a teacher. There is a variety of special tasks, done to certain standards, according to certain procedural rules, and in a social context that is not well-defined partly because it is continually being reconstructed by the participants. For the newcomer there is a lot to learn, and perhaps the least of the problems is the mathematics itself.

A learner's mathematical practice is shaped and negotiated by the classroom participants, but not all participants have equal power in that shaping. The teachers have of course the power invested in their position, but that is only power of the formal, institutional kind. It is the kind of power that allows the teacher to decide on the implemented curriculum in the class, the kinds of activities to be done, the materials to be used etc. Effective power, the kind that enables the teacher to shape interactively a learner's mathematical practice in the classroom, must be earned and won through negotiation and respect.

The classmates or peers also play a fundamental role in shaping learners' practices, again not all equally. There are 'significant others' among the peers who will be particularly influential for the new student, and they may have particular attributes, such as age, ability or a particular personality. However studies of influence (e.g. Moscovici, 1976) suggest that it is as much the learner who choose whom to be influenced by as it is the significant others choosing whom to influence. The suggestion is that it is the learner who chooses which 'others' will be 'significant'.

The learner has in some sense the most power over their learning, choosing for example how much effort to expend, whom to listen to, and whose views to respect. But also they are in another sense a party to the power of others, being a product of their cultural and social history, a history shaped in large part by their family life and by their life outside school. Their parents in particular are likely to be influential, and in the case of mathematics learning it seems from the interviews quoted later that it is often the father who is the more influential of the parents.

Much of this is likely to be the case for all mathematics students. In the social situation of a mathematics classroom they must learn to 'read' the social dynamics, the social interactions, and the social and body 'language'. For the immigrant mathematics student the situation is much more challenging since all of this must be learnt afresh.

Language is a useful metaphor here. When one learns one's first language there is little awareness that one is learning a language. This usually occurs when one begins to learn a second language. That is when one becomes acutely aware of the phenomenon of language. The same is true for learning to 'read' a mathematics classroom. In one's home country and culture, learning to read one's classroom comes naturally, and one is rarely aware of doing it. Of course that does not mean that it is an easy matter, far from it. But in another country, and in another classroom, one quickly realises that one does not automatically understand the 'language' of that classroom. The signs and symbols must be learnt afresh. One is in a transition situation.

Language usage, literally, is of course the most obvious and pressing aspect for all students, as it is the source of all communication of meanings. For the teachers also the students' language use is a strong indicator of the effectiveness or otherwise of the acculturation process. Here is an example of the kind of challenge that the immigrant student faces in mathematics classrooms:

Interviewer: Do you ever do any maths in English?

Ty: Yes, in the Philippines, I lived there for 2 years before I came here.

Int: But you are originally from Vietnam?

Ty: Yes, Vietnam to Hong Kong and then the Philippines.

Int: It is a long way round?

Ty: Yes, for 7 years.

Int: It must have been very hard?

Ty: Yes.

Int: When you are doing maths in the classroom do you think in Vietnamese?

Ty: I think in English.

Int: Do you ever think in Vietnamese when you are doing that maths?

Ty: No never, the solution is different. We have 4–5 ways of solving it.

It is hard to avoid the conclusion that life in the mathematics classroom would be fairly complicated and challenging for that student, even though he admits to being able to think in English, which is already a tremendous advantage for an immigrant into an English-speaking country. However learning mathematics through one's second or even third language still presents a unique set of problems (Dawe, 1983) that can hinder one's mathematical development and progress. More positively however, it might be possible that out of these contrasting language and cultural experiences immigrant students could be constructing a richer understanding of mathematical ideas than we might otherwise expect.

This chapter explores some of the significant aspects of this transitional mathematical practice in order to see what light can be shed more generally on the socio-cultural milieu of mathematics classrooms, and on how to improve the quality of mathematical teaching and learning for all students.

2. CONTEXTUAL BACKGROUND TO THE RESEARCH

Immigration into Australia has created an extraordinarily varied cultural history in the country. From the early days when the English, Scottish and Irish immigrants brought their mix of Anglo-Celtic culture with them, to today when there are estimated to be more than 150 languages spoken, not counting the Aboriginal languages, Australia has seen wave upon wave of new immigration from different parts of the world. Coming as refugees, or as members of families of existing Australian citizens, or as new migrants anxious to create a new life for themselves, the new immigrants have all brought with them their languages and their cultures. This mix of languages has therefore been changing constantly from the 1950s when the immigration policy for Australia meant a heavy influx into schools of Italian and Greek speaking children, through waves of other European groups to the mixture of Asian, African, and sub-Asian continent groups migrating at present.

The extent of the migration is shown by a report by the Public Affairs Section of the Department of Immigration and Multicultural Affairs, Canberra in 1996 which states: 'Today nearly one in four of Australia's 18.5 million people was born overseas. In 1995-96 the number of settlers totalled 99 139. They came from more than 150 countries. Most came from New Zealand (12.4%), the United Kingdom (11.4 %), China (11.3%), Hong Kong (4.4%), India (3.7%) and Vietnam (3.6%).' (Sources: Australian and Immigration 1788-1988 and other material produced by the Department of Immigration and Multicultural Affairs.)

Most Australian schools have a significant minority of non-English background students attending, and in their classrooms there can be a number of languages represented there. Although normally all teaching is in English, many classrooms can have up to 10 different languages spoken by the students, and some have more than that. Clearly the multicultural and multilingual situation in Australia creates special challenges for learners, teachers, families and policy-makers. It also presents ample opportunities for those concerned to research sociocultural aspects of mathematics learning and teaching, as a way of developing ideas for mathematics education in any multicultural society, not just Australia. Most countries in the world are experiencing rapid increases in migration, and school populations in many countries are becoming much more multicultural.

Earlier Australian research on cultural issues, summarised and reviewed by Atweh, Cooper and Kanes (1992), and by Ellerton and Clarkson (1995) in the context of language, generated a variety of literature. For example, Howard (1996) discusses his important research with Aboriginal teacher educators, making us aware of the importance of sensitivity in dealing with cultural issues. Leder, Rowley and Brew (1995c) present some challenging data about students' performances in the Victorian Certificate of Education, the end-of-school examination in the state of Victoria, which suggests that immigrant students often outperform their 'local' counterparts. Thomas (1995) argues for improving language policies in schools to

improve the chances of Non-English Speaking Background students succeeding at University mathematics.

This chapter is based on a research project, funded by the Australian Research Council, carried out in Melbourne, Australia, over a three year period, and undertaken in collaboration with Gilah Leder, Chris Brew and Cath Pearn. The basis for the theoretical framework was the construct of 'cultural conflicts', first elaborated in Bishop (1994) and discussed briefly in chapter 8 of this book.

In this research project the focus was on secondary school students, though not on immigrant students specifically. However one of the main reasons for proposing the project was that the previous research on such students had produced conflicting findings. Some studies showed that immigrant students were achieving better than local students, while other studies showed the reverse to be true (for example, see Leder et al., 1995c). The present study was formulated in the hope that, by considering the students' situation from the cultural conflict perspective, we would develop some richer and more illuminating understandings of the immigrant students' transition experience in mathematics classrooms in Australia.

Research on the cultural conflicts experienced during transition in the learning of mathematics has played a minor role in the mathematics education scene in Australia. However one hope is that the work of the project will demonstrate the potential and the promise of this kind of research, not just to benefit immigrant and Aboriginal students, but the school population more widely. So the scarcity of such research could not be due to any lack of potential benefit nor of interest. Australia, with its significant Aboriginal population, also contains the world's second highest variety of migrant country 'backgrounds', and would seem therefore to be a research site of huge significance for this theme.

As well as having intrinsic and pragmatic interest in terms of the contribution such research could make to the development of the unique multicultural nature of Australian society, there also seemed to be a large potential pay-off for the development of richer theoretical constructs. It is only relatively recently that mathematics educators have taken seriously the cultural nature of mathematical knowledge, with all that that idea implies, and most research and development in mathematics education still privileges a mono-cultural, or even a non-cultural, image of the subject.

However one crucial reason for the scarcity of this research could well be the inherent challenges of doing it. It is indeed a complex research field. As will be shown in this chapter, and as is shown elsewhere in this book, not only is it complex in terms of its theoretical constructs, and in terms of the educational issues involved, but there are specific and huge complexities in terms of the practicalities of doing empirical research in the area. Thus as well as having great practical and theoretical importance in Australia and in many other countries, research on cultural conflicts in mathematics education faces researchers with many other challenges that, if they can be met, may well enable the generation of ideas of potential benefit for the whole field of mathematics education.

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