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CHAPTER 13

Problems of Teachers' Re-entry in Schools after In-service Education

RAZIA FAKIR MOHAMMED

Introduction

This chapter reports a research study of how mathematics teachers who had participated in an eight-week in-service Visiting Teacher (VT) mathematics education programme, organized by the Institute for Educational Development at the Aga Khan University (AKU-IED) in Pakistan, implemented their learning in their classrooms. As the researcher in this study, I engaged in two phases of research. In Phase 1, I adopted an interpretative stance in a phenomenological tradition to understand the teachers' classroom implementation of their learning following the course they attended. Evidence from Phase 1 showed that teachers alone were not in a position to accelerate their improvement within existing school and systemic constraints. A need emerged from the teachers to establish a collaborative relationship between myself and them for development of teaching in the context of the classroom. I, therefore, extended this research from a study of teachers' implementation strategies to a participatory study (Phase 2) of processes involved in supporting teachers' learning and classroom implementation. In this chapter I report only from Phase 1.

A new role in the classroom, in the context of the Visiting Teacher Programme (VTP) at AKU-IED derives from the literature that suggests characteristics for teaching mathematics according to a child's psychological and social perspectives of learning in the classroom (for example, Cobb & Steffe, 1983; Cobb et al, 1991; Jaworski, 1994). This perspective suggests that a mathematics teacher's primary responsibility is to assist in the learners' cognitive restructuring and conceptual reorganization through providing opportunities for social interaction in mathematical tasks that encourage discussion and negotiation of ideas to help them develop conceptual understanding. The instructors on the VT course in mathematics education focus on the conceptual shift in the practice of teachers from traditional to

innovative methods: helping children to develop their thinking and to become responsible individuals within society, and also to assume responsibility for their own learning. They encourage the course participants (VTs) to hypothesize, argue and seek patterns while rationalizing rules and facts, and implement new ways of teaching in classrooms in a cooperative environment. The aim of this approach is to promote VTs' conceptual understanding of mathematics so that they will, in turn, promote their students' conceptual understanding in mathematics classrooms. I designed my research to follow up with some of the teachers who had resumed their teaching after attending the course. This chapter documents and discusses the practical reality, and the challenges and concerns of teacher adaptations to their new role in the context of schools in Pakistan emerging from Phase 1 of the study. Participants in Phase 1 of the study were five teachers, from different government and private schools. They had attended secondary mathematics Visiting Teachers (VT) courses in 1998 or 1999 at AKU-IED. Two of these schools had Professional Development Teachers (PDTs) and the others had VTs from other programmes in different subject areas.

Methodology

The data collection in Phase 1 of the research (from mid-September 1999 to early December 1999) mainly involved field-notes from classroom observation and audio-recorded conversations of my pre- and post-observation meetings with the teachers. The first research meeting with each teacher involved a lengthy conversation about the teachers' learning experiences in the VT course at AKU-IED. The subsequent meetings involved classroom observations and follow-up interviews or conversations. The language used in conversations between the teachers and the researcher was Urdu; the teachers' explanation in their classrooms was also in Urdu, therefore data was collected in Urdu in this study. Analysis was a process of organizing and managing the data regarding the teachers' practice and issues in their classroom after attending the course; and of explaining and understanding this data from the teachers' perspectives (Moustakas, 1994). Analysis began by working on each teacher's data as a whole, including all the field-notes and transcriptions relevant to the teacher in the first phase of my research. I grouped the relevant statements or actions, which were explaining similar aspects of teaching or developing teaching in the classroom. I reviewed the organization of my data critically, reading and rereading it several times. By use of the constant comparative method, in a grounded theory perspective (Glaser & Strauss, 1967), several themes were identified.

Overview of Teachers' Perceptions and Practice

From the conversation in our first meetings it became evident that all five teachers were aware of the usefulness of the new methods of teaching they had experienced in the VT Programme and were motivated to improve their teaching. The teachers believed that students could learn better if a teacher provided them with opportunities to learn mathematics practically and related mathematics to daily life. The teachers liked the collaborative environment at AKU-IED, where mutual dependence was a norm and they did not feel a sense of failure or of inadequacy. The way they experienced themselves as learners at AKU-IED helped them to reconceptualize their roles as mathematics teachers in their respective schools as each of them was motivated to bring change in their classroom practice.

However, from my observations regarding their practice it appears that the major criterion of success in their lessons was emphasis on students' right answers to teachers' mainly closed questions. Teachers acquired all their information, for teaching a topic, from the textbook. A topic was especially important for them if it was expected to be included in the examination. Their teaching was mainly focused on the completion of the exercises given in the textbook. The teachers would provide the students with a formula and solve problems on the board. The students copied down or listened to the teacher or gave answers to the teacher's mainly closed questions. I have chosen a representative piece of teaching from my field-notes and presented it in Figure 6.[1] The topic of the lesson is 'ratio', in Class VII.

In my observations of the teachers' practice, I saw little evidence of the characteristics of a teacher's new role discussed at AKU-IED and based on the mathematics education literature: for example, teachers making sense of the students' thinking in terms of listening to what students say and debriefing their answers; encouraging classroom activity and student involvement; discussion of mathematical ideas by students, and between teacher and students, in an interactive learning environment (for example, Cobb et al, 1991; Jaworski, 1994). I observed that teachers in both government and private school contexts were always in a rush, running from class to class, with a heavy load of 'corrected copies' (students' notebooks).

Teachers' Problems

From my analysis of the conversation regarding inconsistency between the teachers' practice and their stated beliefs, based on their participation in the VT Programme, the following themes were identified.

School's Expectations

The teachers' conversations suggested that in their schools, either government or private, they considered themselves to be a means of carrying out school routines, bearing the workload and accepting the limitations and

orders of their school authorities. The teachers perceived that the characteristics of a good teacher are those of being regular and punctual in all the tasks given by the school authorities as their appraisal would depend on their annual performance report.
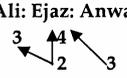
1 T	You know that the symbol of ratio and proportion is different. Read the question.
	The teacher pointed to a student and asked him to read aloud the question from the text book.
2 S	The ratio between ages of Ali and Ejaz is 3 and 4 and Ejaz and Anwar is 2 and 3. What is the ratio among the ages of three of them?
3 T	Who is younger than whom and who is older than whom?
	The students did not answer the teacher's question. The teacher turned to the board and wrote the following information.
	Ratio between Ali and Ejaz = 3:4
	Ratio between Ejaz and Anwar = 2:3
	Continuous ratio?
	After writing the information, he turned to the students.
5 T	Would you tell me the method to find the solution
	The students were quiet.
6 T	In your book a method is given which is called 'N method'.
	The teacher turned to the board, and asked again what was the ratio between Ali and Ejaz. One of the students gave the answer which was 3 and 4. Then the teacher wrote the student's answer on the board. He asked another question about Ejaz and Anwar's ratio and wrote in the following manner,
	Ali: Ejaz: Anwar
	3 4
	2 3
	The teacher linked the quantities with the arrows as it is shown above.
7 T	A figure of 'N' is formed so this method is called 'N method'. We need to multiply numbers linked by arrows to find the answer. For example we will multiply 2 and 3, 2 and 4, and 3 and 4.
	The teacher asked more questions while solving the above example, e.g. what would be the product of 3 and 4, what will you get when multiply 2 by 4. The students answered correctly and the teacher wrote their answers. After that the teacher multiplied the numbers and, by relating them with arrows, wrote 6: 8:12.
8 T	Do you know a table which can divide 6, 8 and 12?
	One of the students replied that it was '2'. The teacher simplified the result further.
9 T	3:4:6 is our answer. Now all of you please copy down the question [solution].

Figure 6. Representative piece of teaching.

For the government school teachers, the most important issue was the physical set-up, namely, the poor condition of classrooms, lack of resources, large numbers of students in a class, authority of the school management in decision-making regarding their teaching subjects, pressure of workload and low level of students' thinking. A top-down form of decisions, inspections and increasing workload diminishes the teachers' confidence in their ability to improve and minimizes possibilities of learning, as one of them said:

> At IED, we had the opportunity to work together. In school, teachers do not have time to talk to each other. We see each other at teatime. Teachers are always in a rush for going from one class

> to another class....The students are mostly irregular, and if I make groups the next day the students would complain that the group is incomplete as someone else is absent ... . I have 62 girls in one class, correction of their note books, preparing test papers, recording numbers in report cards, is my responsibility. I have other classes also. If we make a little mistake, in counting the student marks, the head teacher immediately calls a meeting. You do not know how much pressure we have.

The private school teachers appeared to be responsible for testing their students regularly in order to get better results in their final examination. One of them said:

> We have regular monthly tests, class tests besides four terminal exams. We have to complete, correct, and revise students' work in order to make them able to pass the coming 'exam'. Again preparation of results [which includes correction, counting and grading] is all the time with us. I take copies with me to my home and spend my bedtime in checking. The school is very strict in timely checking of children's work. The school expects us to be regular, punctual and attentive to each student in order to get good results. I do not have time to relax. Have you ever seen me at leisure?

The private school teachers did not mention, explicitly, any problem of getting resources. However, new ways of teaching learned at the AKU-IED required time and professional support to teach a topic and the teacher could not always afford such time and support.

> The school provides materials if we need them. I can make photocopies of work sheets. We have many books in the library and I often use them. Some topics are very difficult and I don't have ideas about how to teach them in new ways. Then I teach in my own way ... . If I find that I am behind in completion of the syllabus as compared to my colleagues, I teach directly from the book. It is not possible to allow students to participate actively all the time.

My analysis suggests that, on the course, the teachers became aware of the importance of applying their new learning for the enhancement of the children's learning in the school. They were with like-minded, supportive people and at the AKU-IED they never felt alone or insecure. Contrarily, in the school environment the teachers practised traditional methods of teaching as they did not have a similar facility of support and expectations by like-minded people at the school.

Lack of Moral Support

After attending the course the teachers wanted the school's support or encouragement to try out innovations such as group work or focusing more on questioning in order to incorporate these approaches into existing classroom routines. They needed a vote of confirmation of their new thinking from the school environment in which they worked. For this purpose they shared their action plans (developed at AKU-IED) with the head teachers. They looked for other colleagues and the school management, who could think, believe or act like they had experienced at AKU-IED. However, they did not receive encouragement; everyone was pursuing routine traditional teaching practices:

> When I came to my school I shared my action plan with the head teacher and she told me that I would not be able to perform accordingly. And it was true.

Referring to his meeting with the head teacher after resuming teaching, one teacher said:

> Instead of listening to me (about my learning at IED) my head teacher said, 'I want a treat from you for your certificate from the Aga Khan University' ... Nobody there had a similar perspective of teaching such as I had developed at IED. And after a few weeks I locked my files in a cupboard and resorted to the routine way of teaching.

Evidence shows that the teachers after the course were insecure in their thinking in schools. They re-entered the schools with new thinking but in a familiar pattern of activities in the culture of schools the teachers appeared to be highly routine-bound. The private school teachers had a fear of losing their jobs and survival in the school, because teaching was also a major source of earning for them, and all their efforts were therefore directed to satisfying the school's needs and expectations.

I quote one private school teacher's comments here. Though she said that she was joking, I now feel that it indicates a real problem. She said:

> if my 'correction' will not be completed in time, my school will kick me out. Do you think that IED would then feed my family?

My analysis is that new thinking and re-entry is perplexing and both cultural and moral support is required in putting new vision into practice. The teachers alone are not in a position to accelerate their improvement within the existing school and systemic constraints. This also results in teachers' adoption of a non-risk form of teaching, low motivation for improvement and discouragement by an authoritarian culture of school. As one of them said:

> Do you think two months' training is enough? There is nobody from IED who comes to school and asks us about problems and work after the VT course.

The teachers' re-entry into their school after the VT phase was a difficult period in rationalizing their learning into a different social setting which had different aims, agenda and expectations from AKU-IED. They needed moral and professional support in order to align their new thinking in the school context. Thus, it was easier to resume their previous role in school, as that role had already been accepted by the school from their many years of teaching experience. In addition to that, traditional teaching was the way teachers could work on their own.

Self-imposition

The teachers' conversations indicated their conformity with their former experiences of learning and teaching mathematics traditionally and its pervasiveness in the school context. For example, one teacher said that she was comfortable in teaching through the traditional method:

> I teach according to the way my teachers taught me ... I like the traditional way of teaching because it is easy and I do not know another method.

The teachers assumed that if they were to start thinking about their AKU-IED learning in the classroom practice, they would not be able to satisfy the school syllabus and preparation for examinations.

> The new way of teaching should be right from the primary school. The students' basic concepts are very weak. If I commit myself to this basic work, how would I manage to complete the syllabus?

The teachers did not have time or motivation to think about their practice on their own during or after their teaching time in the school:

> There are other visiting teachers in school and I do not think they are applying the VT. Everybody is in routine. They think that if they are satisfying the school's needs, why they should give themselves problems.

The new methods of teaching learned at AKU-IED demanded time, support and effort and were incompatible with the school expectations:

> The IED environment is far away from the real situation of school; IED's methods negate the applicability of its philosophy in school. IED provides relaxation in timing and luxury in resources and satisfies all basic needs, which was quite in contrast to the school where teachers have difficulty in getting a chair or a glass of water.

However, none of the teachers was directly stopped by anyone from effecting change in terms of their decisions to adopt new methods of teaching. The

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teachers were decision-makers regarding how the subject matter, imposed by the management in the form of a prescribed textbook, was taught.

> We know that we have to complete the textbook, nobody tells us how and what, but we know it. Sometimes they ask us to choose important exercises and finish the syllabus.

The evidence indicates that teachers viewed the lack of external support as an obstacle – a constraint in applying their new learning in the classroom. They were not explicitly aware of their responsibility or potential in developing their teaching practice. They had seen their school limitations as insurmountable problems and the solution of those problems was out of their reach. In addition, the teachers' previous experiences were recognised by the existing culture of schooling in Pakistan. The schools assessed them according to their efficiency and proficiency in helping students to get results and complete and revise the textbook as many times as possible; which means that their previous teaching was very much accepted by the context as well as approved by themselves. One of them asked me:

> Is it all applicable in this situation? If you were allowed to work here would you be able to maintain the quality of thinking and work you all do at IED?

It is important to recognize here that teachers alone were not in the position to improve their teaching. They did not seem to be aware of their own self-resistance in developing their teaching.

Interpretations and Expectations

I found an issue of difference between the teachers' interpretations of their learning and the course expectations. For example, the teachers, who believed in active involvement of students and thought their teaching practice to be in line with the AKU-IED principles, were really changed teachers according to their own views. In the case of some teachers, their students worked in groups for sure – they were *sitting* in groups – but the group work was not promoting students' deeper understanding of mathematics as hypothesized at AKU-IED. For example, one teacher, who arranged group work, viewed the purpose of group work in the following way:

> I explained everything, then completed the exercise [the teacher solved each question] and gave questions for practice to work in groups. You can understand how much work I have to do.

The outcomes of group work were limited as there was no evidence that the group discussion contributed to the students' understanding of the topic. In a physical set-up of a group, either the students would solve questions individually in their groups according to the teacher's method or help their friends to apply the teacher's method in solving questions or explain what the

teacher asked them to do. Although, the teachers used the terminologies of group work, open questions, practical aspects of mathematics, use of concrete materials, and so forth, they did not discuss the meaning or substance of all the mentioned terms, and it seemed that they did not think about how these approaches would contribute to students' learning.

Discussion

Because of my experience of being an instructor in the VT programme, I knew that the teachers' mathematical misconceptions (such as concept of an angle, ratio equations, and so on) were discussed in the course in a very detailed manner. However, there was no evidence of the teachers using that experience of mathematics in their classroom when students' misconceptions were apparent. Why did the teachers not apply their learning of mathematics in teaching? Why did the teachers' perceive IED's perspectives of teaching in this limited way? Were such ideas and approaches not applicable for the teachers' needs, in the ways they were introduced to the teachers? Why does such a conflict exist? This could be an issue of a difference of expectations between teacher and learner, 'didactic tension', as Mason (1988) called it. It could be said here that the teachers had got the shell (the names of strategies and methods) but not the pearl (understanding) inside it. What might resolve this conflict?

The teachers' practice, in accordance with the school's expectations, reveals the problems of teachers' adaptations of behaviour with respect to authority or culture, as well as transference of the teachers' learning from one culture to another culture. The university course took the teachers away from all the problems they faced in schools and provided them with a new experience of learning in a relatively luxurious environment. It could be seen as an unintentional and gentle imposition on the teachers, who had had opposite experiences of working/learning previously. My analysis is that an imposition, either strict or gentle, resists change in understanding but quickly appears in the change in behaviour and in words. At the university the teachers had resources, opportunities and encouragement to try out new ideas with professional support which extended their thinking in relation to modifying their teaching practice. However, the school expected them to complete the syllabus and shaped the teachers' practice according to its expectations. The teachers' behaviour in two different environments points to the influence of the nature of two contexts in making or breaking their efforts of developing teaching. This also identifies the conflicting expectations of different environmental conditions in believing, at AKU-IED, and practising change, at school. Thus, the difference between two cultures of teachers' learning and practising reaffirms teachers' confidence in deeply held experiences of traditional teaching of mathematics and their consistency with the culture of school. Teachers' practice, therefore, appears to be resistant to

change, no matter how effectively a university course engages them in new methods.

The conflict could also exist when there is a big difference between the teachers' (in this context the instructors of the VT programme) expectations and the learners' (the teachers) expectations and the instructors' philosophy of teaching and the teachers' theoretical perspectives. The instructors of the VT programme encouraged the teachers to develop a perspective of teaching similar to theirs, so that the teachers could introduce change into their classrooms. The instructors provided an environment for the teachers so they would not only learn mathematics but also the process of learning mathematics in an interactive learning environment. These expectations could be seen as a substantial and sudden difference from the teachers' previous experiences, thoughts, perceptions, environment and experiences to the new one in the short period of the course. They were situated in a powerful culture that had a heavy influence on their thinking and actions. A question arises as to whether it is possible for teachers to grasp new concepts (mathematics and mathematics teaching) in a limited time at AKU-IED, with no continuing support in their school. The teachers themselves were not secure in fulfilling those expectations. It is therefore not surprising that they remembered some terminologies without an in-depth understanding.

The teachers had difficulties rationalizing two roles. One role was based on their tacit perception of being a teacher, completing the textbook and preparing students for examinations. The second role was to enable the students to be actively participating in their learning according to the teacher's new understanding. Limited time and support did not allow them to reflect on the implications or gain insights. Some teachers thought both roles could not be fulfilled by a teacher at the same time. Some tried to adopt both perceptions but were not able to fulfil them in order to enhance students' learning and the issue appeared in the form of didactic tension.

Thus, the teachers' teaching was in the tradition of the school and society with little influence from their learning at the course. These teachers were traditional teachers but also appeared responsible adults. A lack of support and a culture of practising routine in schools had discouraged them from continuing change in their practice. The teachers' saying that 'nobody could understand our problems', or 'there was nobody from IED to care for our learning', all showed that these teachers were discouraged by their schools as well as ignored by the university in their further improvement. At the initial stage of change, teachers needed consistency between their learning and contextual expectations and support; the school had its own limitations, aims and agenda and the teachers expected continued support from AKU-IED, which was not available. Under the unfavourable conditions of the school, although desirous of teaching according to course ideology, they just kept their wishes to themselves.

A Way Forward

From the discussion above, it can be assumed that any proposed change in teaching should address areas such as school policy, teachers' working conditions and resources, innovative curricula and improvement in teacher appraisal structures (as discussed in Day, 1999; Kelly, 1999). The question remains: what are the implications for teachers who are struggling for change in schools in the context of Pakistan, where bringing changes at a policy level is an ambitious goal? The teachers' issues confirm that change cannot flourish in a vacuum. Teachers, isolated from support and within conceptual and contextual constraints, see the school as an authority figure, teach for the right answer and explain rules, rather than discussing the reasoning behind them.

Several questions emerge for the community of teacher educators: can teachers achieve any improvement, if the culture works against the teachers' improvement? How can teachers maximize their learning capacities if their self-esteem is low? What can be the nature of teacher education in these circumstances and limitations? How can we, as teacher educators, liberate teachers from the imposed constraints of schools in their contemplation of change? In order to respond to these questions I will refer to one of the teachers who said: 'We need an environment to "push" [drive] us.' Evidence from Phase 2 of this study also demonstrates that a highly supportive and trusting relationship between a teacher and a teacher educator is of benefit for teacher education, and for research with the teachers in Pakistani schools (Mohammad, 2002).

It is important to recognize here that teachers' engagement in an in-service course is necessary and, potentially, a powerful part of the continuing professional development of in-service teachers; however, leaving teachers unsupported in school and expecting them to be change agents cannot bring about improvement in practice at the beginning of this journey to change. Teachers' professional development is restricted rather than extended, fragmentary rather than coherent, while they feel isolated within their constraints and view the course as a one-shot professional learning event.

Note

[1] I have translated into English all transcripts and quotations from teachers from the Urdu in which they were spoken and recorded.

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