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Action Research: A Viable Alternative for In-service Teacher Professional Development

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Abstract

In this paper, the author argues for the professional development of teachers to be based upon systematic action research undertaken as a collegial activity within the culture of the school. Three case studies of action research, one each from South Asia, East Africa and Central Asia, in which Professional Development Teachers (PDTs) (MEd graduates of AKU-IED) worked with teachers to improve teaching and learning in the classroom, are presented to illustrate the possibilities and challenges of using action research for teacher professional development.

The author further argues that while action research for teacher professional development addresses the challenges of other forms of teacher professional development, for increased benefits partnerships with universities wishing to support schools in doing action research should be developed and schools must be better resourced and supported over longer periods of time.

Introduction

The quality of education in schools depends on the competence and commitment of teachers. Research shows that there is a decline in the quality of school education in most developing countries as a result of inadequate teacher preparation (Warwick and Reimers, 1995; Hoodbhoy; 1998; Niyozov, 2001). This realization has led to a growing emphasis on in-service teacher education. Most of in-service teacher education uses a delivery model in which new knowledge is identified and delivered to teachers who are expected to apply the same in their classrooms. Usually this knowledge is delivered in one-shot workshops held at sites remote from the classroom, with little or no follow up support for teachers (Grundy & Robinson, 2004). Thus even though in-service teacher education has increased, there remains a “fundamental persistence” in teacher-directed learning in schools, as relatively few teachers apply learning from the courses in their classrooms (Groundwater-Smith & Dadds, 2004). Many reasons have been suggested for the lack of classroom change: the transmission view of teaching that teachers have is rarely critiqued in teacher education programmes (Richardson, 1997); courses are too theoretical and neglect the practical needs of teachers (Eliot, 1981); teachers distrust academic research as it fails to account

for the differences between schools (Groundwater-Smith & Dadds, 2004); and a lack of follow up support as teachers try to develop their pedagogical practice (Joyce, Calhoun & Hopkins, 1998). Because of these difficulties, there is a growing emphasis on using Action Research for teacher professional development.

What is Action Research? Simply put, Action Research is a systematic inquiry into practice, with the intention of understanding and improving it. Carr and Kemmis (1983) described Action Research as “a form of self-reflective inquiry undertaken by participants in social (including educational) situations in order to improve the rationality and justice of (a) their own social or educational practices; (b) their understanding of these practices; and, (c) the situations in which these practices are carried out” (p. 152). In this definition Action Research goes beyond technical solutions, and tries to obtain a commitment towards improving practices, basing the said on a critical understanding of the practice and on the situation in which the practice takes place.

In order to engage in Action Research, practitioners identify a problem of practice and formulate a strategic plan to address it using a cyclic or spiral process, which consists of planning, acting and reflecting. Reflection on the actions in one cycle informs actions in the next cycle. Alternating between action and reflection allows one to understand the situation better and to take successful actions, as well as refining methods and data and interpreting the said in the light of the understanding developed in earlier cycles.

Action Research can be used to make small improvements in individual practices and/or influence institutional change. However, institutional change seldom occurs from improvement in an individual’s practice. Thus in most of its forms, Action Research is a collaborative activity involving others as co-researchers. The co-researchers study the situation, plan actions, implement them and engage in self and collective reflection.

Action Research requires ongoing validation from an educated audience able to judge the authenticity and relevance of the research in a professional context. Initially it involves the researcher giving a true account of her/his practice and justifying it through drawing on professional knowledge available through others’ research. As it progresses, it moves on to testing the research with colleagues both within and outside the research context, and finally goes public to convince others of the validity of the claims (Lomax, 1995).

The Researching Practice, Practicing Research Study

Background

In the context of a deep decline in the quality of education in developing countries, Aga Khan University, Institute for Educational Development (AKU-IED) was established in 1993 with the aim of improving the quality of education in schools through teacher education and research. To achieve its aim, it has started to offer a two-year Masters in Education programme for in-service teachers to prepare them as exemplary teachers, teacher educators and researchers. In the Masters programme, teachers are introduced to a variety of strategies for improving the quality of teaching and learning in the classroom. Graduates of the programme (better known as Professional Development Teachers or PDTs) return to their schools to teach and provide in-house training to their colleagues. Following a few iterations of the programme the need was felt to study its impact on student learning; a number of strategies were proposed, one of which was classroom-based Action Research.

The Research Question

The Researching Practice, Practicing Research Study was designed to evaluate the impact on student learning of three instructional strategies taught in the Masters programme: discussion, cooperative learning and inquiry. The research question asked, “What benefits accrue to students from teachers using student-centred instructional strategies, taught to them by the PDTs using Action Research?” There were also a number of subsidiary questions, of which this paper focuses on one: How does Action Research facilitate the professional development of teachers?

Research Design and Methodology

The Action Research in this study was simultaneously conducted at three levels. The focus and outcomes expected at each level are presented in Table 1. This paper draws on findings from the Action Research conducted at levels 2 and 3.

Table 1: Focus and outcomes of Action Research at each level

| Level | Who | Actions | Outcomes |
|-------|----------------------|--|---|
| 1 | Principal Researcher | Develop an understanding of Action Research and the instructional strategies. Facilitate research through support and challenge. Document the process. | Challenges and possibilities of Action Research for the teacher educator. Nature of impact at all levels. |
| 2 | PDTs | Teach Action Research and instructional strategies. Peer-coach teacher; facilitate critico-creative reflection. Document the process. | Possibilities of using Action Research for teacher education within their context. Changes in self, others and context. Nature of cooperation, inquiry and discussion. |
| 3 | Teachers | Learn Action Research and instructional strategies. Use Action Research to facilitate use of instructional strategies. Document the process. | Possibilities and challenges in using Action Research and strategies in their classroom. Benefits that accrue to students in terms of knowledge, dispositions, and skills. |

Research Sites and Participants

The research was carried out in six sites in five countries (Pakistan, Kyrgyzstan, Tajikistan, Tanzania and Uganda). Five of the sites were schools, while one was a university department preparing pre-service English language teachers.

Table 2: Research sites and participants

| PDTs | Discussion Teachers | Cooperative Learning Teachers | Inquiry Teachers |
|---|--|--------------------------------------|--------------------------------------|
| Anthony Primary School Tanzania | Daniel Samuel | Daniel Samuel | Daniel Samuel |
| Farida Secondary School Karachi, Pakistan | Ambar Zubaida (dropped out midway) | Ambar Najma | Ambar Shaheen (joined later) |
| Haseeb Secondary School Gilgit, Pakistan | Alam Bibi | PDT dropped out of the study | |
| Anthony/Ijlal Secondary School Tajikistan | Jamila Alivuai | Gulgena Jamal | Gulzar Baktu |
| Roku University Kyrgyzstan | Rakia Ainagul Bermet Gulnaz | Rakia Ainagul Bermet Gulnaz | Rakia Ainagul Bermet Gulnaz |
| Maria Secondary School, Uganda | PDT dropped out of the study | | Self Dominic |

The Conduct of the Research

The principal researcher invited six PDTs to a meeting where they discussed and agreed to the idea of the research study. Over a week, each day 2-3 hours were

spent developing a common understanding of Action Research and the instructional strategies through presentations, discussion, identifying and addressing concerns and identification of relevant literature, which the PDTs could take with them to facilitate the research.

Returning to their schools, the PDTs met with their head teacher, discussed the research proposal and obtained their consent. The PDTs then invited teachers to participate in the research. Following reconnaissance, the PDTs chose discussion as the first instructional strategy as most teachers already used some form of discussion in their teaching. Besides the instructional strategy, PDTs taught the teachers Action Research to better facilitate their understanding of the process; and to also enable them to engage in Action Research themselves in order to improve the use of the strategy in their classrooms. The teachers received PDT support until they could research their practice themselves. The same process was used for cooperative learning and inquiry.

While the PDTs supported and challenged the teachers, the principal researcher supported and challenged the PDTs through email communication, organizing small group meetings, chatting on the Internet and visiting some schools.

Action Research Facilitates Expansion and Elaboration of the Knowledge Base of Teaching

One cannot simply tell teachers to teach differently. Teachers themselves must make the change. To do so, teachers must “construct a professional knowledge base that will enable them to teach students in more powerful and meaningful ways” (Borho & Putman, 1995, quoted in Bolam and McMahon, 2004, p.49). While there are questions about defining essential knowledge in teaching, given the variations in teaching situations, the work of Shulman (1987) provides a beginning. Shulman has suggested that effective teachers require knowledge in seven areas: content, pedagogy, curriculum, pedagogical content knowledge, learners and their characteristics, educational contexts and educational ends. The findings of this study indicate that Action Research was the facilitating factor for improvements in all seven knowledge bases. However, because the research focused on using pedagogies that called for active intellectual engagement of students in learning, the teachers’ and students’ understanding of pedagogy was especially enhanced.

Desire to enhance subject content knowledge

As teachers used instructional strategies that required them to move away from the transmission of textbook content, their lack of subject knowledge and understanding became evident. They expressed their fear of being unable to answer the students' questions claiming that in many cases their students were better informed than they were. Reflecting on their teaching, especially the script tapes of their lessons, the teachers realized the need to improve their content knowledge and to acknowledge and draw on students' knowledge to facilitate learning. They stated,

I realized that we have to learn before we teach. We have to get information from the internet and the encyclopaedia for discussion topics as some students may ask questions which we do not know the answer to.

When students are involved in inquiry they raise difficult questions that I may not be able to answer so I updated my knowledge. I started reading articles and surfing the internet.

I realize that students are not empty vessels but have knowledge and experiences from which even the teacher can learn and draw on to facilitate learning.

In addition to acquiring content knowledge, four of the teachers enrolled in university programmes to enhance their knowledge base.

Improved knowledge and effective use of pedagogy

The reconnaissance revealed that the dominant teaching strategy used by the teachers was read-explain-question. In mathematics classrooms, teachers teach and make students practice the application of an algorithm; while in English grammar classrooms, the grammar drill method is followed. The PDTs found that what teachers called discussion was really recitation (teacher questions and student answers); cooperative learning was group work in which textbook questions otherwise answered by individual students were given to a group; and inquiry consisted of giving students a topic and having them make a presentation on it. Most of the teachers acknowledged that they had been introduced to the strategies in workshops and short courses, but because of a lack of follow-up support and institutional imperatives, they had been unable to translate the said into effective classroom practices. They claimed that effective use of the instructional strategies was facilitated by the use of the Action

Research process and the support of an in-house facilitator. Action Research resulted in more effective use of the strategies and in some teachers gaining mastery. The greatest gains were made by teachers who participated in all three phases of the study, worked collaboratively and received ongoing support from the PDT.

In the process of using Action Research to implement discussion, cooperative learning and inquiry, teachers developed new knowledge, skills and dispositions, recognized limitations of past practice, and became innovative and creative in the use of the strategies. When introduced to the theory of the strategy in the training sessions, most teachers did not understand exactly what the strategy entailed. However, practice in the classroom and identification of problems in practice led them to turning to the PDT for help; and caused them to return to training materials and make requests for more information. A teacher said, "Using jigsaw was difficult for me. I thought all I had to do was divide the text among the group and tell them to learn it. After I did it today, I reflected on it and realized each student would only learn one bit of the text. I read the handout on jigsaw again. I realized that they have also to teach it to each other."

While learning the strategy of *discussion*, the first thing teachers had to learn was to frame discussion questions. After many attempts they learned to frame higher order questions (HOQ). Initial attempts to conduct classroom discussions revealed that teachers were impatient as they filled in silent moments with their own ideas or provided the right answer. They learned that HOQs required wait time for the students to think and needed to probe students' responses to check conceptual understanding or deepen thinking. A mathematics teacher stated, "If students are stuck, the teacher has to click on (probe) them; questions help them to think deeper."

Following initial use of discussion all the teachers expressed concern regarding lack of student participation as they could not ascertain if and what students were learning. To facilitate participation they encouraged fluency rather than accuracy, called on quiet students and monitored participation. Once most students were participating some teachers expressed satisfaction while others shifted their attention to the quality of students participation. These teachers found that discussion requires students to have knowledge or experience of the topic and discussion skills. Thus, prior to a discussion, the teacher had students read about the topic or provided them with the information needed. They taught and encouraged students to support their ideas, seek clarification, disagree in an agreeable manner and summarize the discussion.

In primary classrooms teachers found that students were not willing to wait for their turn, they all shouted, "Teacher!", "Teacher!" The teachers would laugh when students' responses were incorrect or unusual, and they either strayed from the topic or wanted to ensure all possibilities were covered before moving on. The teachers found that conducting a discussion requires great skilfulness on their part and that students had to be taught social and discussion skills, given demonstrations and be provided with many opportunities to practice before the benefits of discussion could be obtained.

In most cases the PDTs found the Learning Together model of *cooperative learning* (Johnson, Johnson & Holobec, 1991) to be a very complex strategy and decided to teach Cooperative Structures (Kagan, 1992) moving from simple to more complex ones. In using cooperative learning in their classrooms, teachers had difficulty designing challenging tasks. Most teachers had difficulty giving clear instructions. They gave many instructions at a time and when students did not understand, just repeated the same instructions. They learnt that when teaching a new cooperative structure, instructions are best given at each step and that in addition to the orally said, written instructions should also be provided.

In all of the countries where the study was conducted English is a foreign language. With the exception of the countries in East Africa, most students are not fluent in English. Cooperative learning requires students to learn with and from each other. Teachers realized that students required more time to express their thoughts, to read the materials, to understand what was read and teach each other. This meant allocating more time in Think-Pair-Share. When using Jigsaw with new material, teachers had to ensure students understood key words in the text, and were provided with more time for students to learn the material and teach their colleagues. Teachers learnt to deal with the issue of time by having students read material as homework and continued using jigsaw over two to three lessons. While the teachers all complained about time and being behind others who taught different sections of the class, they all acknowledged that cooperative learning allowed them to "discover the degree of students' understanding and determine the areas where they needed help".

Teaching which centres on knowledge transmission does not require teachers to know and teach a variety of skills. In *inquiry* classrooms, rather than systematically teaching students the skills, teachers would tell students what to do without teaching any of the required skills. Moreover, when they did teach the skills, they expected students to immediately demonstrate an effective use of them. When starting with the teaching of inquiry, teachers told students to frame inquiry questions. Most students framed lower order questions requiring

the identification of a fact. For example, after teaching students how to frame inquiry questions, a teacher reflecting on her lesson wrote, “When I taught how to make inquiry questions not all students were able to do it. I realize I have to explain it again”. She also wondered if her emphasis on “grammatical accuracy in framing the questions could have hindered framing inquiry questions.” With so much emphasis on the ‘one right answer’, both teachers and students had difficulty understanding the concept of hypothesizing. A teacher reflecting on her lesson wrote,

When I asked students to hypothesize, they took out their textbooks to look for correct answers. When a group presented their hypothesis other groups corrected them. I explained many times it’s OK if you are wrong.

When it came to information locating, gathering and processing skills, teachers initially had students generate a list of information sources, and as in the past, sent the students to gather information. Gradually they moved to choosing a source of information and systematically teaching students how to locate, gather and process information. In many cases, however, processing information was still an issue for both teachers and students. After a number of iterations at the end of the inquiry process a teacher observed,

I didn’t have any knowledge or skills which could have helped me in using inquiry. There were several weaknesses in my teaching. I did not know ways of locating information from different sources or different ways of presenting information, now I have learnt and taught my students how to collect information from the community, make notes of their readings and summarize the information.

As the teachers learnt new instructional strategies, they became quite creative in their lesson planning. They planned lessons using a variety of cooperative structures and integrated discussion into them. They also discussed putting cooperative learning into inquiry. Furthermore, on learning to use an instructional strategy in one subject area, teachers were quick to note, “we can use this method in other subjects as well” and in some cases they actually did.

Increased understanding and use of subject specific pedagogy

Teachers found that all the three instructional strategies facilitated the learning of English. In English language classrooms, they moved away from the grammar

drill method to the communicative approach. In using the communicative approach, teachers recognized that they had to encourage fluency before accuracy; therefore, instead of immediately correcting students' mistakes, they noted them down or audio recorded them and had students identify and correct them. A teacher reported,

When students made mistakes, I wrote them in my notebook and at the end of the lesson I read them out and asked the students to identify the mistakes and correct them. I also began to record the discussion and asked students to listen to it and correct the mistakes which they made. Sometimes they corrected their mistakes themselves.

The teachers became conscious of the fact that while each strategy helped to develop particular skills, adaptations had resulted in the development of all the four language skills. Discussion facilitated the skills of listening and speaking, but when teachers had students prepare for a discussion, it involved reading for understanding and making notes. Inquiry required reading and writing, but presentations of findings called for speaking and listening. Most cooperative learning structures required the use of at least two skills but Jigsaw, on the other hand, required the use of all four.

Only one teacher used discussion to teach English literature. She found it particularly useful as students analyzed the topic and presented their own interpretations. However with topics such as "love at first sight" perceived as taboo in the society only a few students were willing to share their views.

Social studies and science teachers found all the three strategies were applicable in their subjects. In one school where science and social studies teachers were engaged in the study, the science teacher recognized the similarity between inquiry and investigations in science, and applied it more systematically than before. The social studies teacher, however, had to be encouraged to use it in social studies because he thought it was only suitable for science. Both social studies and science teachers found knowledge inquiries useful, as it allowed them to cover the prescribed syllabus, as well as extending students knowledge beyond the textbook. In one school, social studies and science teachers were encouraged to conduct issue-based inquiries. Besides facilitating understanding of the issues, the teachers found that the said resulted in attitude change as well. On conclusion of the inquiry a teacher wrote

For a teacher it is always more worthwhile to notice improvements in students' behaviour rather than mere written assessment results.

In addition, science and social studies teachers found discussions particularly useful in finding out how well students understood a topic, and also in addressing misconceptions. Both subject teachers found cooperative learning useful to further their understanding of concepts taught and also found that it helped in content review.

Teachers found it difficult to conduct whole class discussions in the mathematics classroom. One teacher dropped out of the study as she felt, "Teaching mathematics is about knowing the correct way to solve the problems and come up with the correct answers." In mathematics classrooms, teachers usually work out problems on the blackboard and then have students solve similar problems individually. Even though many students have difficulty solving the problems, they are reluctant to ask the teacher. The teachers found small group discussions a good intermediate step, allowing students to engage in mathematical talk, which facilitated the understanding of what was required to solve the problem. Teachers found that listening in to the mathematical talk and analyzing the strategies students were using helped them to see students thinking, and also helped in identifying and dealing with misconceptions. Teachers found that the formation of cooperative learning groups, teaching of social skills and group processing increased the effectiveness of the groups.

Increased knowledge of students' characteristics and how they learn

As the teachers used strategies that called for active participation from their students, observing their students at work and reflections on their teaching, they became more knowledgeable about their students. They became more conscious of students' varying personality characteristics, abilities and how they learn. They also found that societal biases and prejudices are reflected in their classrooms, and that students' behaviour and opinions are influenced by their gender, race and social class.

Initially teachers were quick to categorize all students into binary opposites of active/passive or bright/dull, with the first adjective generally meaning intelligent. However, in response to the concern of limited student participation during discussion, teachers encouraged all students to participate. When they called on the 'passive' students to contribute to the discussion, they found that

they made appropriate contributions, challenging their perception that students who did not volunteer contributions were dull. A teacher stated,

Now I know that Nazira, Kanykei and Dinara prefer to answer only when they are asked to but when you don't ask them they will sit quietly and will not raise their hands.

Following cooperative group, work teachers expressed surprise when 'passive' students volunteered answers and made presentations on behalf of the group. When students were engaged in inquiry, a teacher observed that some students are self-motivated while others have to be motivated to learn. The teacher stated,

20-30% of my students are eager to learn and do work on their own, the rest wait for the teacher, the teacher has to motivate them.

In addition to learning about students' characteristics, teachers also became conscious of factors that facilitate and hinder student learning. Teachers learned that if a topic is interesting and meaningful to the students then they are motivated to learn. They also learnt that encouraging and praising students' contributions during discussion raises their self-esteem and has positive effects on students learning in other subjects as well. Correcting students' mistakes hinders participation in discussion. A teacher said

I learnt much from this project. It helped me to use different kinds of activities so that my lessons varied and students found the lessons interesting. It was the use of these different activities which helped students to learn better. I have won the students respect. They wrote in their journals, 'You are so creative'.

Teachers learned that there are a variety of ways in which students learn and that they should use these to promote student learning. Discussion in the class facilitates mastering the subject matter, and improving upon perspective recognition and communication skills. Cooperative learning improves student learning as well as working with others. Teachers stated

I have learned that cooperative learning is an interesting and effective way to learn a language. It develops students' English language skills: writing, reading, listening and speaking. It also helps students to think independently and work with others sharing their opinions, ideas and encouraging each other to participate.

I agree with the theorists, that students learn better by working together in cooperative groups. Students discuss the material to be learned with one another, help and assist one another to work hard.

All the teachers expressed surprise at what students are capable of achieving when the teacher actively engages them in learning and allows them to think for themselves. Following a cooperative learning task in which students demonstrated how well they understood the material and could teach it to others, a teacher said, "I was surprised at how well the students taught each other. They teach better than us. I never knew that."

I was very impressed when during a discussion a student explained, 'in order to subtract a fraction from a whole, a whole must first be divided into equal parts' (SO 2003).

Teachers found that students do not like to work with 'weak' students; in East Africa students prefer to work with students belonging to their own racial group; and in co-education classrooms student are reluctant to work with the opposite sex. Following use of cooperative learning groups, teachers found a decrease in this reluctance. Observing students' discussions in co-education classrooms, teachers found gender differences in their behaviours and opinions.

I have more male than female students in my class. Mostly I observe male students dominating the discussion. They give less opportunity for females to talk. For instance, today, only one female student spoke, the rest kept silent. Also topics which are related to business, money and mechanics are not of interest to girls.

An instructor following a discussion on "Making a career: Is it for women?" observed:

For some time the girls became so emotional and aggressive in defending their view that women should make careers whereas boys preferred their future wives to sit at home and care for their family. Boys made one group and girls another. Both seemed to genuinely support their position. I found it so difficult to make any suggestions being a female teacher.

Knowledge of educational ends, the curriculum and the context

Teaching does not take place in a vacuum. Improvements in teaching practice need to take an account of educational ends, the curriculum and the context of practice. Two of the sites in the study are in countries transitioning from soviet style education to more democratic styles. However, an OSI-ESP 2002 study concluded, “current curricula still pays tribute to curriculum practice dating back to Soviet time: they are still excessively encyclopaedic, knowledge, content and information cantered, instead of aiming at developing students’ critical thinking skills, self-reliance and attitude of *learning to learn*” (p. 14).

Schools have tried to make education more democratic by training teachers in a variety of strategies that could help students develop the skills and attitudes required to learn how to learn, but as an analysis of one of the schools reveals, “Although many teachers are using child cantered methods such as group work...around 70% of teachers have not internalized the basic rationale for using these methods. Most use them as rhetoric and are not well aware of the impact of these methods; they possess superficial acquaintance with these methods”. In this same school there is an emphasis on more democratic forms of teaching. The PDT working with social studies teachers encouraged them to understand the purpose of social studies and how inquiry could help realize it. In Kyrgyzstan, the growing importance of English made teachers want to improve their teaching of the language so that their students could become more fluent in the language. Action Research helped teachers create more democratic classrooms, enrich the curriculum based on the emergent needs and interests of the students, and develop students’ disposition for participation, cooperation and learning to learn.

In the university department in which the project was conducted, it is a common practice to separate fee paying and scholarship students. Because scholarship students win places on merit they tend to be better students. However, teachers found that when they used the instructional strategies the results were the same in both classes and as a result they challenged the separation. In the same department when one of the participating teachers became chairperson of the department, she endeavoured to institutionalise the instructional strategies she had learnt.

In Pakistani schools, the curriculum is the textbook, and the teachers focus on completion of the textbook. The PDTs accepted this reality, but helped teachers to see how skills and values sadly lacking in the textbooks could be developed through the said strategies. When the academic session 2004-2005 was extended

from March to May, and teachers had the freedom to add new topics in the syllabus, the PDT used it to encourage them to add the study of social issues to the science and social studies curriculum. Teachers who engaged in social issue inquiry came to view education as more than just exam results, and started viewing it as students acting on knowledge gained from the inquiry; this demonstrated positive changes in their attitudes.

Acquiring the Dispositions and Skills to Continue Professional Development

Action Research helped teachers acquire the dispositions and skills necessary to continue their own professional development.

Reflective practitioners

The most powerful part of the Action Research process is reflection, as it helps teachers in carefully considering the practices, beliefs and assumptions that influence their practice. As a result teachers gain insight into their practice, their students and the context in which the practice is carried out. In order to promote reflection, the PDTs taught teachers the importance of reflection and encouraged them to reflect on their practice in a reflective journal. As most of the teachers had never systematically reflected on their practice, they had difficulty with a number of factors; such as, what to reflect on, how to write their reflections and also finding the time to write. A teacher expressed these concerns, "To reflect is difficult for a teacher. I did not know what was effective, I could not provide evidence. I did not know how to write. I paid more attention to writing than reflecting." This led to the PDTs using reflective conversations during which they demonstrated reflection, asked questions and showed teachers how to review field notes to identify strengths and weaknesses; and subsequently find ways to improve. With the exception of the school in Karachi, these conversations were conducted collaboratively. As teachers learnt the art of reflection they were able to engage in self-reflection and put their reflections down in writing.

Initial attempts at reflection were judgmental statements in which teachers blamed students. Following a discussion lesson a teacher stated,

During the discussion I observed five students out of twelve discussing the topic with each other. They shared their views and gave some more information. They were active. I observed two

students not talking at all. They were passive. They were not interested in the discussion. They don't like to study at all.

Rather than uncovering the reasons for the observed behaviour and what she could do to address it, the teacher put it down to naturally inherent characteristics of the students.

Another common practice was for teachers to defend their present practice. When reflecting on lessons where it was indicated that the teacher was dominating the discussion, the teacher justified this practice, claiming.

I have to tell students some things which they do not know... I have to summarize the discussion myself as they can not do it.

As the teachers continued reflecting they became more aware of limitations in their practice and how it affected student learning. Besides greater awareness of practice, reflection facilitated teachers in questioning their professional beliefs and values, and recognizing the difficulty in changing practice. When this practice continued she reflected,

I know the process of class discussion and the importance of giving students' freedom to speak and involving them more. But it is difficult to change oneself; as a teacher I am used to being at the centre of everything in the class.

It also resulted in teachers seeing new possibilities and coming to hold new beliefs and values. Gradually she moved from centre to side observing,

This time I tried to speak less than my students although it was difficult not to participate in the discussion. I was really surprised that I sat among the students and only answered when they asked me a question. The conclusion was also done by the students...I have learned to observe the students and have found that the students have become more responsible for their own learning and learn from each other. I have begun to change my old attitude...I learnt that I do not have to be the centre of attention all the time.

As teachers became more skilful at reflecting on their practice, their reflections deepened and they were more disposed to reflect on themselves, on others and within their in their own contexts.

Inquirers

Action Research facilitated the development of the disposition of inquiry. Teachers developed this disposition by using the Action Research process of defining a problem of practice, developing an action plan to address it, implementing the plan, recording what happened and reflecting on data to identify ways to improve. As they planned, acted and reflected, their practices improved. This helped them to see the value of being inquirers. The teachers claimed

It (Action Research) helped to change my teaching, to overcome some difficulties in class. I never thought of such problems, but after conducting Action Research I began to notice problems which I had in teaching. I learned to gather evidence and work on the improvements of my classes by working on the questions. This I did not do before.

It was very good to use Action Research in my classroom as it makes you confident about resolve your own issues in the classroom;

To tell the truth, I did not know what Action Research was before. But gradually I learned it. I liked to use it to work on problems that I had. I used data collection tools which helped me to collect evidence and improve my practice...Not only problems in implementing class discussion can be solved through Action Research but problems in teaching in general.

In order to become effective inquirers, teachers require a number of skills: these include the ability to identify problem of practice, collect relevant data, to analyse it and to take actions to improve. Teachers found that collaborative reflection facilitated identification of the issues of practices, and observations an effective means of data collection. They learnt to write field notes, make checklists and tally sheets. They also collected students work, and less frequently audio or video recorded their teaching. The teachers noted,

I observed and noted down students' grammar mistakes...Observation of students action, reaction and attitude helped me to see how students learnt. I also learnt to observe if the activity was effective or not, what steps or action should be taken to improve students learning.

Besides learning to gather data around a question of practice, teachers learnt how to analyse the data to see whether change had occurred. Teachers wrote in their journals,

I was working on the problem of lack of participation. I put a check each time a student participated. Seeing the results of the previous discussion and this I came to know that this time students' participation increased. The results pleased me.

I compared the two groups: focus group and control group. In the focus group students could express their ideas freely and openly. They listened to others and respected each other (RD, 2003).

While one can undertake an inquiry to learn for oneself, most often an inquiry is undertaken to share learning with others. In order to share their learning with others, the teachers were encouraged to write end of phase reports. From very general descriptions of practice, teachers' reports became focused on describing a lesson, identifying an issue and on ways for addressing it. Moreover, many teachers developed papers to present at conferences and for publication.

Cooperative and collaborative learners

The PDTs and teachers found that engaging in collaborative Action Research made them more cooperative and collaborative learners. With the exception of Karachi, the teachers in each area worked as a group. They engaged in joint planning and collective reflection. In Central Asia, teachers also had the opportunity to observe each other whilst teaching. These practices provided opportunities for teachers to share successes, along with discussing problems and learning from each other. Collaboration helped teachers to see that they were not alone in their efforts to improve, and gave them the opportunity to take risks that they might not have taken otherwise. Let me share a few examples: during a collective reflection session a teacher shared how she prepared students for discussion in her English language class. She stated that she made the students do some exercises to make them understand the key words in the topic. She had them pronounce the words accurately, explain their meaning and use them in sentences. The other teachers recognized the value of the strategy and used similar strategies in their classrooms. In another site, teachers reported learning from the observations of each other's teaching. Teachers learned to use colour coded cards to form heterogeneous groups, to record observations of students engaged in group work, and to use these to assess students learning. It also allowed for demonstrations, rather than simply telling students to perform a

task. Teachers subsequently used the learning from the observations in their own classroom.

As the teachers' practice improved, they encouraged other teachers to become part of the learning community. A teacher approached the PDT asking to be included in the project as she had learned about discussion from her colleague, who had made her realize that what she was doing was not discussion. The teacher wanted to learn how to conduct effective discussions. She said,

Rakia told me about the process of conducting discussion. I don't think I am conducting discussion in my classroom, as the students do not interact with each other, but only answer to me. Will you involve me in the project so I can learn how to do class discussions?

Increased professional efficacy and passion for teaching

Professional efficacy is defined as the belief in one's ability to bring about desired outcomes as a result of teaching and professional commitment; whilst maintaining a willingness to try a variety of approaches. As the research progressed, teachers developed a greater understanding of their practice, becoming more adept at the use of the instructional strategies, more conscious of their students and how they learn; their teaching moved on from just implementing others' ideas and repeating pre-designed performances; to making decisions regarding what and how to teach, engaging in thoughtful planning, taking informed actions and on reflecting on what they taught. Teachers designed more complex lessons; combining and integrating the instructional strategies to demonstrate the art of teaching. For instance, a social studies teacher began her lesson by asking students to do a Think-Pair-Share to identify all the Mughal rulers. She then had students in their cooperative learning groups do a Round-Robin to suggest all the qualities that should be present in a leader. She followed this by having students read a handout about the rule of Akbar and Humayun to decide the better ruler, ensuring that the students had underlying evidence for their choice. .

As teachers provided students with greater opportunities to participate in the teaching and learning process, the relationship between them and their students began to change. The authoritative teacher was replaced with the more democratic teacher, subsequently improving the relationship between teachers and students. A teacher wrote in her journal

Before this, we did not have real life communication in the class. The students and the teachers spoke according to the grammar structure being taught. Now I myself have begun to communicate with my students in a real life manner. I have become more sociable with them.

The challenging and independent work created a passion for teaching. The research study helped many of the teachers recognize that teaching was far more intellectually demanding and challenging.

The Challenges of Using Action Research for Teacher Professional Development

The Understanding of the work of teachers

The findings also indicate that improving practices with respect to the work of teachers and the understanding of teaching and learning in developing countries, forms a massive challenge for Action Research. In most schools, teachers have never seen the curriculum. For them, the textbook is the curriculum and the goal of teaching is completing the textbook. The syllabus for each term is determined by dividing the textbook contents and all the teachers are expected to complete the syllabus at the same time. A teacher observed, “The system does not allow us to work deeply on a topic because of the scheme of work, which is made before the new academic year begins”. As the textbooks contain factual information, teachers have come to see teaching as the transmission of textbook facts and learning as successful memorization of the facts. Besides classroom teaching, great emphasis is placed on teachers correcting students’ copies to ensure the correct information has been recorded. As most classrooms are large almost all non-teaching time is spent in corrections, leaving no time for planning or reflection on teaching. The teachers complained,

A teacher has to do too many things. It’s not only teaching in the classroom, correction is also there. Most of our time out of the classroom is spent in corrections. There is no time for planning or implementation of new strategies.

Thus, a major concern that emerged and remained throughout the study was that of time. Teachers felt that the instructional strategies required them to spend more time on a topic, taking away time that was required to complete the syllabus. Most teachers are used to transmitting considerable amounts of content

knowledge in the 35-40 minutes of class time. However, when it comes to teaching students to find answers to questions themselves, teaching a skill or developing an attitude; it must be taught systematically and consistently over time. In addition, learning something new usually takes more time. The teachers had to spend time planning, teaching and they required time for reflection as well. However, no adjustments, were made in the teachers' timetables, and thus they were expected to learn a new strategy, engage in Action Research as they implemented it and complete their regular assignments.

The teachers in the study recognized the potential of the strategies to facilitate student learning. A teacher observed

Although I had difficulty covering the syllabus while using whole class discussion, the learning which the students gained in the process was durable.

But rather than challenge the conception of the work of teachers, she decided to find a way to work within the system. The teacher continued,

I will not be able to use this approach daily; I can deliver one or two successful lessons a week as it needs more hard work and thinking to plan these lessons.

Furthermore, teaching as knowledge transmission and learning as rote memorization is perceived to be unalterable, as exams are based on the textbook. The fact, however, is that board exams are held only for higher classes, in which case completion of the prescribed syllabus is critical. In the lower classes the teachers themselves decide the syllabus and set the exams. Refutably the system is so entrenched that most teachers, do not see that change, even when they teach lower classes.

Understandings of teacher education

Like teaching and learning, there is little understanding of the process of teacher education in schools. In most private schools in East Africa and Pakistan, teachers are appointed on the basis of their academic qualifications. Most schools therefore offer in-service teacher training, which generally consists of one-shot workshops conducted on Saturdays; or of specially allocated teacher professional development days while a few are sent for award bearing courses. Teachers feel that both strategies do not facilitate the use of learning in the real classroom, as they are too theoretical and because there is no support to facilitate implementation. A teacher said:

We teachers spend so much time doing courses, workshops, etc., but in the real classroom the learning from these courses cannot be implemented as they are not practical.

A teacher education strategy like Action Research, which is more effective, is not well understood and rarely supported. One of the benefits of Action Research is the fact that practitioners can engage in research. A good amount of literature indicates the possibility of teachers using Action Research to improve their practices, as many of the skills required by Action Researchers are also effective teaching skills, and thus are easily transferable. However, this is generally not the case in the contexts in which this study was conducted, as most teachers had no prior teacher training. The teachers had to learn new instructional strategies; as well as developing the skills for data gathering, analysis, reflection and report writing. To undertake this task, teachers required a lighter teaching load until they could use the skills effectively. However, when the PDTs were given permission to conduct the Action Research, the permission did not contain the conditions for providing teachers with the opportunity to learn the strategies and conduct the research. Both PDTs and teachers were expected to continue with their regular assignments and also to do the research. Most felt overburdened and pressured to successfully complete both tasks. What kept the research going was their interest, commitment and ingenuity and the facilitative support of the PDTs.

Action Research requires teachers to better understand and find ways to address problems of practice in the literature. PDTs and teachers found little, if any, reading material on Action Research, on the instructional strategies and on subject specific literature. The PDTs who were aware of the lack of literature in their contexts, had taken along some literature with them, but it was in English and teachers found some of it too difficult to read. Literature could be accessed from the internet but in Tajikistan and rural Pakistan there is limited access and the cost of accessing the internet in Tajikistan and Kyrgyzstan is prohibitive to its use. Furthermore, there was also a lack of basic equipment (cassette recorders, transcribers) to facilitate research at all sites except Tanzania. Even basic stationery like paper and markers were inaccessible in Tajikistan.

Implications of Using Action Research As A Strategy for In-Service Teacher Professional Development

There is no doubt that Action Research is a powerful tool for in-service teacher professional development. If the benefits that can accrue as demonstrated in this study are to be achieved and further enhanced, then the work of teachers must

be reconceptualized; and necessary changes in institutional structure and practices must be made. These efforts could be enhanced through the development of school-university partnerships.

Reconceptualizing the work of teachers as professionals

In discussing how the work of teachers is presently conceptualized, I have shown how teachers have been deskilled, and how their work has been reduced to just textbook coverage and correction of students work. If we want to improve the quality of teaching and learning in schools then teachers must come to be seen as professionals who are able to exercise some degree of autonomy. I suggest some degree of autonomy as, unlike other professionals, giving the teachers the ability to be able to work together as a community so they can improve the quality of education in a school. In this study teachers became curriculum leaders: enriching content, choosing instructional strategies and recognizing the limitation of present assessment practices. Like professionals they reflected on their practice, inquired into issues of practice and individually and collectively sought ways to improve it. In order to do this within present understandings of teaching and school practices, they had to make enormous personal commitments in terms of time and energy. Changes like this are not sustainable as they depend on teachers' willingness to volunteer and on high motivation. Action Research needs to be used for institutional change, and for changes in the structure and practices of schools to enable teachers to make quality improvements at the classroom and school level.

The research project was conceived 'out of school'. A better option would be for schools to engage in a joint visioning exercise to determine the changes required, determining how to train teachers and on using Action Research supported by an in-house expert to institutionalize the change. Research has shown that innovations, especially complex ones require at least two to three years to become institutionalized (Fullan, 1991; Johnson and Johnson, 1994). It further suggests that during early implementation it would be preferable to have ongoing support through a trainer or an in-house expert who will assist implementation and provide access to expert advice. School based professional development aimed at implementation of an innovation will require time for teachers to learn, to engage in joint planning, to observe each others' teaching and to reflect on practice. Structures of school must be changed to provide time for teachers to learn the innovation and engage Action Research. Time for the self and collective learning could be provided by time-tabling individual reflection, and half a day in each week for teachers to come together to engage in joint reflection and planning. Alternatively, the setting aside of a professional development day for

teachers once a month, has also proved to be very useful. These strategies will require schools to explain to parents the need for teachers to have this time and seek their support in such efforts. Moreover, if schools are to become sites of teacher education, then schools must be adequately resourced for continuing teacher education. In urban areas teachers could look to access universities or public libraries, and even a few computers with internet connections could become a valuable resource for teachers. In areas where internet connections are not available, material can be downloaded on CDs and made available to schools. The teaching and learning resource centres can provide access to conventional and, where possible, internet facilities. Mobile libraries for teachers could also be developed. Furthermore, successful use of Action Research will require school leaders to not only generate time and resources for staff development, but also to provide ongoing expert support to assist with the implementation. In addition, school leaders must become familiar with the existing knowledge base to ensure implementation and study learning outcomes.

University-school partnerships

Unlike many Action Research projects that are conducted by university professors in schools, in this case the university professor only supported novice teacher educators as they worked with the teachers in their own schools to improve their teaching practice. Because the teacher educators and teachers belong to the same school, it offers possibilities for the institutionalization of Action Research for in-service teacher professional development in schools. However, to realize the possibilities of Action Research for teacher and institutional development, universities must contribute to the preparation of teachers for their role as Action Researchers by ensuring that Action Research is a part of teacher professional development programs. Teacher educators at the university must model Action Research processes that are rigorous, successfully designed and complete; in order to encourage their students to do the same. They must also see it in their interest to support novice teacher educators as they begin their work with teachers in school so that successes can be celebrated, new problems addressed in time and self-confidence in new roles acquired.

Conclusion

This study indicates that Action Research is a powerful tool for in-service teacher professional development. It provides teachers an opportunity to think about their practice, try out new ideas to improve it and promote student learning in the given context. Action Research also serves to create a culture of inquiry in

which teachers are learners, critically reflecting on their practices to improve them. When undertaken collaboratively and supported by an-in-house facilitator, it has greater potential in bringing about change in one-self, in others and within the context in which it is carried out.

Teachers are not viewed as professionals and schools are presently neither conducive to, nor as organized as places of teacher professional learning. In order to facilitate the use of Action Research for in-service professional development, schools will have to provide time, resources and expert support for teacher learning. When schools become learning institutions for all, they will be revitalized and learning will be a deeply engaging and satisfying process for teachers and students.

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