December 2005

Creating independent learners: Using inquiry in Pakistani classrooms

Bernadette L. Dean
Aga Khan University, Institute for Educational Development, Karachi

Farah Huma
Aga Khan University, Institute for Educational Development, Karachi

Follow this and additional works at: http://ecommons.aku.edu/pakistan_ied_pdck

Recommended Citation
Available at: http://ecommons.aku.edu/pakistan_ied_pdck/74
Creating Independent Learners: Using Inquiry in Pakistani Classrooms

Bernadette L. Dean*, Farah Huma*

Introduction

We live in the information age; our body of knowledge is growing exponentially. Whereas in the past knowledge doubled every 1500 years, today it doubles every 70 years. It is believed that in a few years all the facts we require will be available on the internet. Thus education today must shift from being product oriented with an emphasis on what is learned to being process oriented with focus on how to learn. That is a shift from learning facts: names, dates, description of events to developing in students the ability to locate, gather and process information to answer questions, solve problems, and make decisions.

Research on teaching and learning in Pakistani schools (Hoodbhoy, 1998; Warwick and Reamers, 1995) indicates that teaching is generally product oriented. Product-oriented classrooms are teacher directed. In them, the teacher is the sole authority, transmitting information from the textbooks to the students. Students passively listen to the teacher and rote memorize the information. Such teaching and learning results in students knowing facts that they are able to regurgitate like parrots (Hoodbhoy, 1998) but unable to use to answer questions, solve problems or make decisions. If Pakistan wants to be at par with the rest of the world in this age of information it is imperative that teachers learn to use instructional strategies that can facilitate the move from product to process oriented classroom. The strategy of inquiry promotes this shift, as in inquiry classrooms students are active participants in locating, gathering and processing information to answer questions or solve problems. The teachers guide students in their efforts, teaching them the skills necessary to facilitate learning.

This paper reports an action research study aimed at facilitating a teacher in using the instructional strategy of inquiry in the classroom. It delineates the action research process and the learning that accrued to the teacher and students from the use of inquiry in their classrooms.

Why Inquiry?

Beyer (1971) defines inquiry as a quest for meaning that requires one to perform certain intellectual operations in order to make experience

* AKU-IED, Karachi.
understandable. Ellis (1991) in defining inquiry elaborates on the intellectual operations involved. He notes that inquiry is a process of framing questions, gathering and processing data relevant to those questions, and drawing inferences or conclusions about the data. To engage in inquiry one requires a unique set of attitudes and values such as curiosity, analytical ability, willingness to suspend judgment and provide evidence to support hypothesis. It also requires one to recognize that knowledge is fragmentary, changing and a matter of interpretation, some absolute truths but many relative truths (Beyer, 1971).

Often it is believed that emphasis on process means neglect of knowledge acquisition. However, research indicates that acquisition and development of a sound knowledge base of the subject is the result of inquiry (Evans, 1994). It also indicates that involvement in inquiry activities facilitates development of a number of skills such as questioning, gathering and processing information, drawing inferences or conclusions, testing hypothesis and presenting information (Beyer, 1971). When inquiry is undertaken in small groups students develop cooperative skills, clarify personal values, understand other perspectives and develop empathy towards others (Evans, 1994). Research also indicates that students perform better on tasks requiring higher level thinking when involved in inquiry activities.

Even though many benefits of using inquiry to promote students’ learning are known, few teachers actually use inquiry in their classrooms. Research (Rop, 2002) suggests that inquiry is not used in schools as teachers face institutional and curricular pressures such as having to cover curricular content and prepare students for examinations.

Research Design and Methodology

To explore the questions under investigation an action research study was designed and employed. According to Kemmis and McTaggart (1998).

“Action research is a form of collective self reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out”. Elliot (1991) defines action research as, “The study of a social situation with a view to improving the quality of action within it”.

Action research uses a cyclic or spiral process of reflection planning, action and observing; this allows one to continually refine methods, data and interpretation in the light of understanding developed in earlier cycles and take action based on their understanding (Dick, 1993). Thus, unlike most research which is a two stage process, the first knowledge generation and the second application the practitioners in action research the two processes of research and action are integrated (Somekh, 1999).

Action research was chosen firstly, because there is evidence that practitioners learn more if they subject their practice to deliberate and conscious reflection (Schon 1983, 1987). Teaching is a complex, idiosyncratic and difficult activity and the collective self-reflective inquiry required in action research would help teachers to understand and improve their practice. Secondly, action research is usually a collaborative effort involving teachers at every stage of the process. There is evidence that more and better learning accrues from working with others; that a partnership in which one works together with colleagues is more ethically satisfying (Dick, 1993). Thirdly, the given context often constrains action. By recognizing that these limits are socially constructed, teachers can act to alter these limits and create possibilities for change (Dean, 2000).

**Research Questions**

The research sought to answer the following two questions:

1. What Learnings accrue to teachers from the use of action research to facilitate inquiry in their classrooms?
2. What do students learn when their teachers’ use instructional strategy of inquiry in their classrooms?

**Research Site and Participants**

The research was carried out a private girls school Karachi. The school has three sections: pre-primary, primary and secondary. There are 1700 students and 120 teachers in the school. The research was conducted in the secondary section by a school-based teacher educator (Fariya) working with two teacher (Dina and Shahida). However, this study reports only the work done with Dina in the class eight social studies classroom.

**Conducting the Action Research**

The study began with Fariya sharing the theory and method of Action Research with Dina. This was followed by Dina in the instructional strategy of inquiry. Dina and Fariya then co-planned inquiry lessons. The lessons planned were implemented and reflected on. Areas of concerns were identified and addressed. Data was collected through the use of a variety of
tools: Field notes were made of planning session; script taping (similar to tape recording except it is a written record of what is said and done in the classroom) was used to record the lesson. The teacher used the lesson observations to reflect on her lessons and both the teachers and the teacher educator recorded their reflections in reflective journals.

The Action Research Project

Reconnaissance

Action research projects begin with a reconnaissance of the participants and context in which the research is carried out. It provides the information for the development of a tentative action research plan. Fariya reflected on her knowledge of action research, inquiry, and teacher education. To find out Dina’s present practice she observed her teaching in the classroom and conducted an interview. She also looked at the likely possibilities and challenges in the school context.

The Teacher Educator

Fariya has bachelors in science, chemistry, botany, zoology and a Masters degree in teacher education. She has been a teacher in the teaching profession for the last twenty years. Since her Masters in teacher education she has been working in schools as a teacher educator.

She worked with teachers in different subject areas helping them to improve their classroom practices by facilitating planning of innovative lessons and implementing them in the classroom; all were aimed at providing students an opportunity to participate actively in their learning. The experiences led to the realization that teacher learn best in an enabling and challenging learning environment which exposed them to activities directly useful for their classroom practice and which indicate the students’ learning outcomes clearly.

Fariya had engaged in action research prior to this study and was aware of the difficulties of doing action research in the school. She did not know what to expect in trying to implement inquiry in social studies as she had only a little knowledge of inquiry.

Fariya, Dina and Shahida are pseudonyms
The Teacher

The teacher Dina has a Master in History and has been a teacher in the school for the last twenty years. She started as a Montessori teacher then became a primary school teacher and is now working as a secondary school teacher. She teaches English and Social Studies to classes VI, VII and VIII. She had not acquired a professional degree due to her family responsibilities and therefore participated enthusiastically in school-based professional development opportunities.

Classroom observations revealed that she occasionally used interactive teaching approaches such as discussion and she wanted to participate in the research as she had some knowledge of action research having engaged in the process earlier and wanted to learn how to use inquiry as she felt that, “Children only become interested if we teach nicely, if we use different teaching methods in our classroom” (Dint 18/9/02).

Dian noted that inquiry meant searching for information and the process of inquiry as identifying information from sources like books, encyclopedias, and websites. In Dina’s opinion students required information location skills, language skills to gather relevant information and skills to present the information in the form of booklets and charts (Dint 18/9/02).

School

Most teachers in the school have a Bachelor or Masters degree but only some of them have professional education. Therefore, the school management provides opportunities for the teachers to enhance their content and pedagogical knowledge by organizing in-house workshops for the entire teaching staff and sending some teachers for teacher education courses. Although the school has made efforts in sending its teachers for various courses and providing the facilities to bring about change in the classrooms, not much has changed. It has been noticed that although teachers learn various new approaches to teaching, very few make them a part of their regular classroom practice. Thus, the most popular teaching approaches used are lecture and group work. The management has recognized that besides training teachers need regular support to use the innovative teaching strategies in their classrooms. Thus they have appointed teacher educators. The opportunity for a teacher to participate in a research that would facilitate the use of inquiry in the classroom was seen by the school as an important means of improving the quality of teaching and learning processes.

Fariya, Dina and Shahida are pseudonyms
Each year, all students are encouraged to work on a project. The project resembles inquiry in that students find information on the project topic and present it in the form of booklets and charts, which are displayed for all to see. As students are not taught how to locate, gather and process information projects reports are often a cut and paste of information and illustration from books and websites.

Resources play an important role in supporting the teaching and learning process and adequate resources are essential for inquiry. The school is well resourced. Each section has a well equipped library and computer laboratory. Overhead projectors, photocopiers, cyclostyling machines, and scanners are available. Audio visual equipment like TV, VCR, tape recorders and audio cassettes are also present. Students have access to stationary items such as charts, papers and markers.

Based on the reconnaissance of herself, the teacher and the context, Fariya developed a tentative action plan. She decided to quickly review what are action research and the cyclic process of action research with the teacher and then focus on developing the teachers’ knowledge of and skills in using inquiry. She then planned to work with the teacher as she used inquiry in the classroom.

**Cycle One: General Training Component**

Dina was already familiar with action research but to further her understanding two sessions were conducted. In the first session a chapter from the book ‘you and your action research project’ by McNiff, Lomax and Whitehead (1996) which focuses on the importance of action research, the process, and ways to collect data was discussed. In the second session, more attention was paid to the action research process of planning, acting, observing and reflecting and the tools by which data would be collected. Dina expressed confidence in engaging in action research and noted that should she face any difficulty she would ask for help.

The next two training sessions were conducted to understand inquiry: what it is, the benefits to students and the process. The reading ‘Inquiry Teaching’ by Arends (2004) was used to develop teachers’ conceptual understanding. The next sessions focused on understanding each step of the inquiry process. It all seemed too much for Dina so Fariya shared an example of a recent inquiry she had conducted in her Pakistan Studies class. At the end of the meeting Fariya asked Dina to think about the topic that she would like her students to inquire into and share it with her the next day. Reflecting on the session Fariya felt that if she went on to teach Dina all the inquiry skills at once Dina may get confused. She also realized that skills are best developed through practice so she decided to intertwine training and implementation. She would train Dina in the skills as they were required.
Cycle Two: Content based inquiry: Teaching and implementing the strategy step by step

In this stage, training and implementation were intertwined. Fariya trained Dina in a step and then Dina used it in the classroom.

Identifying the inquiry topic and framing inquiry questions

Dina had chosen topic Asia from the syllabus as she wanted the syllabus to be covered. She feared that if she chose another topic she would be unable to complete the syllabus and her class would be left behind. Fariya recognized how important it was for teachers to complete the syllabus and so agreed with the chosen topic.

Fariya pointed out that ‘Asia’ was a vast topic and suggested narrowing it or dividing into sub-topics such as ‘landscape, climate, religions, and famous personalities’ (Fj 2/4/04). She then asked Dina to develop some questions for each sub-topic to set the parameters within which the information would be gathered. Dina framed questions like, ‘How many countries are there in Asia? How many languages are spoken in Asia?’ (Fj12-4-04). Most of the questions she developed required a one word answer on explaining the nature of inquiry questions Dina developed some other questions which were factual but required more than one word answers and other questions that asked for an opinion with reasons justifying it. For example, ‘which religions are popular in Asian counties and why,’ ‘what physical features are found in Asia’ (Fj12/4/04). Fariya acknowledged these were better questions and the process continued like this for each sub-topic. However, when planning the lesson it was decided to give students the topic and allow them to identify their own questions so that they could develop the skill as well.

Framing inquiry questions with students

Dina formed ten groups of four students and gave one sub-topic to each group. She asked each group to brainstorm the concepts or areas they would like to study within the sub-topic. For instance, the group working on culture identified the topics of ‘languages, literature, life style, dress, food, and festivals’ (Fobs 10/4/04). Dina then asked the student to frame inquiry questions. She instructed the students not to develop questions which had ‘yes’ or ‘no’ or one word answers. However, most questions developed by the students were factual such as, ‘How many languages are spoken in Asia?'
Which is the most popular language? What are the famous festivals of Asia? (Fobs 19/4/04) besides responses to these questions are found in textbooks and thus promote rote memorization only. Dina went around to each group and helped them to develop questions such as, ‘what is the difference in the life style of different regions of Asia? Why do the languages differ in different regions? (Fobs 19/4/04).

Learning and teaching information location, gathering and processing skills

Fariya had Dina brainstorm the different sources of information the students could refer to before going to class such as books, encyclopedias, atlases, web resources, and discussed now to locate and gather information from each (Fj 26/4/04). In the class Dina had students identify the different sources of information following which she sent the students to search for information in the library. Fariya was surprised as students were not taught how to locate and gather information before being sent to the library. Dina’s response was students knew how to do these activities as they are used to answering questions from the textbook and other material provided by the information they had gathered, more than half of the students had little or nothing to show. They complained that ‘they could not find information such as literature from different countries or climate of some Asian countries. Other had forgotten the file at home (Fobs 30/4/04). Dina blamed the students stating “only half of the students are interested therefore they have gathered some information. The rest are not interested. They just want the teacher to give them information” (Fjn30/4/04). Fariya suggested there might be other reasons such as students not knowing how to locate relevant information from the encyclopedia or the web, not having being taught how to. Dina did not agree stating students had past experience. To Fariya’s suggestion that she should teach the students how to locate and gather information, she noted that there was no time to go into such detail. However, Dina did identify and shared some websites which had good information about the different Asian counties. She also explained how to find information from the encyclopedias. She then told them that they should only select information relevant to answer the questions. In the next lesson Dina had the students’ share the information collected from various sources and helped them in identifying relevant information. Dina had to stop work on the inquiry to prepare students for their May tests. She wanted to find out what students had learnt and was going to take a test. Fariya suggested she use the KWL grid (K stands for knowledge students have, W for knowledge students want to find out and L knowledge they have learned). She noted that the K and W columns should have been completed earlier but as it was

Fariya, Dina and Shahida are pseudonyms
not done students could do all three. Se was pleased at the knowledge students had gained.

**Presentation of inquired information**

Fariya had Dina identify various modes of presentation such as charts, models maps, pictures, booklets. Fariya suggested Dina teach students how to make the presentation using one method but Dian disagreed. She claimed that students already knew how to make presentations. She wanted students to identify the best way to present their information. Fariya was aware that the students knew how to present but she also knew that their presentations could be improved with some guidance. In class when Dina asked the students in what way they would like to present the information they not only made suggestions similar to the ones Dina had identified but added drama to depict various lifestyles; bringing in concrete material to show the clothes and jewelry worn and food eaten and the group working on physical features suggested a model of the map of Asia to show all the physical features (Fobs 11/8/04).

The academic year was at its end. The students were so excited about preparing for the presentation that 20 students suggested coming in the summer vacation to work on them. The teacher encouraged them to start the work and ensured them of time to complete their work after the vacations. In August when schools reopened the students worked enthusiastically on their presentations. They presented their work to parents and colleagues at an exhibition. Visitors to the Asian stalls remarked how well the students “were able to answer the questions put to them on what they were presenting” and how confident they were while giving their answers.

Dina continued doing short content based inquiries. She focused on helping students frame inquiry questions, make educated guesses, gather information from the given text materials and write answers to the questions. In January on learning that the current academic session 2004-2005 had been extended from March to May and the school had given teachers the freedom to add new topics in the syllabus, Fariya asked Dina if she would like to do an issue based inquiry in her class. Dina asked what an issue based inquiry was and when Fariya explained she agreed.

**Cycle three: Becoming more independent**

Fariya and Dina discussed possible topics for an issue based inquiry. Dina suggested Health (physical and mental), Local bodies, co-education and Domestic child labour. Fariya suggested identification of one of the issue that Dina though would be relevant and of interest to the

Fariya, Dina and Shahida are pseudonyms
students. Dina identified child labour as a new and interesting topic for students (Fj 25/1/05).

Dina and Fariya developed a concept map on child labour to identify what information students would require to understand the issue. Dina identified reasons for child labour, the nature of children’s work, working conditions, (Fj 30/1/05). Fariya then suggested Dina frame an inquiry questions.

**Frame inquiry questions with students**

In class Dina informed students that they were going to engage in an inquiry on child labour. Dina asked students to share their questions which she wrote on the blackboard. She then discussed each question with the class asking them to identify if the question is an inquiry question or not. Questions such as “what are the causes of child labour? What kind of work do children do? What kind of work do children do? How can we stop it? What work has been done to eliminate child labour? Were identified as suitable inquiry questions. Question such as: Are the children forced to work? Were identified as yes/no questions and changed to why do children work? The students quickly noted that it was similar to what are the causes of child labour. The inquiry questions were: what are the causes of child labor? The inquiry questions were: what are the causes of child labour and how can we eliminate it? Dina was very pleased with the lesson noting that students had learned to frame inquiry questions. Dina then shared with Fariya the problem students had with the next step in the inquiry process that is, making educated guesses. She said, “Reflecting on my lessons I have found that students cannot guess the answer” (Fj 6/2/05). Hence, Fariya explained what is guessing, why do guess, and how to do it?

**Making an educated guess**

Guessing answers to the inquiry questions was the next step which turned out to be a challenging task for the students. Most students thought hard about possible answers and suggested causes for child labor. They seemed, however, to think they had to come up with the right answer rather than educated guesses. They would not seem to come up with ways to eliminate child labor so Fariya with Dina’s permission explained what educated guesses were and told them if they could not come up with an idea to simply write “I do not know’ as they would find out through the inquiry (Fobs 6/2/05).
Information gathering skills

Used to having students gather information from text and web-based resources Dina planned to do the same. Fariya encouraged her to look at other sources of information and in this case pointed out that people may be a good source. Dina thought it was a good idea. It was then decided to ask students to collect information from relevant people through interviewing them. Students identified the people from whom they could get information to answer their question. They suggested working with children, parents of such children, relatives and neighbors who employed children, school management, teachers and students from other classes (Fobs 7/2/05).

The teacher divided the class into small groups and told each group whom they interview. The next step was to identify the questions they would ask in the interview to gather the necessary information. However, when framing questions for the interview the students developed questions similar to the inquiry questions such as “What is child labor? What are the causes of child labor? What are the effects of child labor? Fariya understanding their difficulty pointed it to Dina. She explained what the problem was and how to address it. Dina was not comfortable with this in the classroom training and so Fariya explained to the students that each group had to develop questions keeping in mind the people whom they would interview, and the information they wanted from them for example, the group interviewing parents of working children could ask “why do you employ children?” Why do you send you children to work?” and to those employing children, “Why do you employ children?” The groups then developed a list of question (Fobs 8/2/05). When Dina reviewed the questions she found that all the groups were able to develop appropriate questions but there were a few unnecessary questions and some questions repeated in different words. In the next class she pointed this out to the students and the students. The groups were then told to logically sequence the questions and the ready to conduct interviews (Fobs 10/2/05).

Fariya pointed out the Dina that as it was the first time students would be conducting interviews they should role play the interview. Dina was absent (1) so Fariya demonstrated an interview through a role-play. Fariya asked questions and a student volunteer answered them. All the students then conducted the interviews.

Information Processing

Collecting information from various sources new led into sorting, classifying and compiling of information. The students on completing the interview process brought the separate drafts of each interview to class.

Fariya, Dina and Shahida are pseudonyms
They were taught to put the data for each question form all the interview tighter first and then summarize the information, while most groups did both steps as shown below a few had to be helped in summarizing the information.

**Q5:** What are the reasons that these children are working rather than receiving education?

*Ms Ahme:*

These children are working under many circumstances, such as some of them are orphans, some have just one parents, some have parents but they are not in conditions of working, some also have very greedy parents and some belong to very poor families.

1Dina’s brother had died and so occasionally Dina was absent to fulfill religious and cultural duties.

*Ms Sharif:*

The family is very poor they can’t feed so there is no pint of education.

*Ms Siddiqui:*

Generally they work because they are very poor and as they will work they will bring money to fill many hungry mouths with food because poor people have many children, and sometimes they have no parents so they have to work.

The summarized answer was,

These children are working under difficult circumstances as one of the managers said that they are working to fulfill the needs of their families. Another said that they have very large families. They also said that some of the children are working because they are orphans or they have one parent but they are handicapped or they are very poor, and some children are not interested in studying.

To compile the information collected by all the groups to answer the inquiry questions, Dina wrote each question on a flip chart. She then asked each group to share the information they had collected to answer it. In this way the entire data collected was summarized.

**Presentation of findings**

As before Dina asked students how they would like to present their findings. Besides the suggestions of reports and charts, students suggested writing articles for the school’s wall newspaper and developing a website which they learnt in their computer classes (Fobs 23/2/05). As students had

Fariya, Dina and Shahida are pseudonyms
not learnt how to write an article, the format for writing articles was to be shared with the students (Fj 25/2/05). Dina was absent so Fariya introduced the format to the students. The websites, reports, their computer in English teachers later reviewed articles and the two charts prepared by the students. The groups that had prepared the websites showed them to the entire class in the computer laboratory (Fobs 14/3/05). The reports and charts were shared and then placed in the library and the articles put up on the school’s wall newspaper. At the end the students discussed how they could help children laborers and discussed a fund collection. No action was, however, taken.

**Checking for knowledge retention and understanding**

Even though the students had been actively engaged in the entire inquiry process, demonstrated their learning through writing articles, reports and preparing charts and websites, Dina still wanted to check individual students knowledge and understanding through a paper pencil test. She asked students questions such as “What are the main reasons for child labor?” and “How are child laborers generally treated?” After checking the papers she wrote “the answers proved that the work done by the students on their own was remembered by them one and a half month later without any revision” (Dina report, p. 4).

**Students’ Learning Outcomes**

*Increased knowledge, understanding and improved retention*

The inquiry process enabled the students to develop their content knowledge as well as understand the important social issue child labor. The process of framing questions they wanted answers to, locating and collecting information to answer their questions results in enhancement of students’ content knowledge. A student reflection on her learning form the inquiry write, “My knowledge increased because when I had to find some information I went to different books and websites to find it and I came to know many things which I do not know before” (Student’s reflection). Another student shared, “By reading books I learned that they [children] also work in hazardous conditions, when they work on plantations they are bitten by snakes and insects and they are exposed to pesticides banned in industrialized countries. They work in horrible conditions” (Students reflection 17/2/05).

When the students began the inquiry on “children Labour” they were aware that some children worked as domestic servants because they were poor. While inquiring they better understood child labor. They learnt that children work for a variety of reasons. The most important is poverty. They work for the survival of their family and themselves but as they are
children they are not well paid’ (Students’ Report, 14/3/05). They also found that there is a gendered division of child labor. “All over Pakistan girls are employed for house hold work’ while boys worked outside the home in auto mechanic workshops and factories (Students’ Report, 14/3/05). Discussing the reasons for the large number of working girls, the students noted that in some case this is because of cultural beliefs. They wrote

“In some cultures people fear that if they (women) get educated they will not fit into traditional roles as in some nations they (women) do not want to get married nor have children. Such cultural beliefs and practices restrict the education of females and promote female child employment” (Students’ Report, 14/3/05).

The students responses to an examination questions “why is Asia called the land of extremes?” and on a paper-pencil test a month and a half after the children labor inquiry indicated that students retain knowledge acquired through inquiry.

Development of inquiry Skills

Enhanced Questioning Skill

The ability to ask and answer questions is central to learning. Framing questions is essential to a systematic inquiry process. Questions are asked to give direction to the search for information and to synthesize what has been discovered.

As a part of the preliminary stage of the inquiry projects the students had to frame inquiry questions. It was observed that the process of framing questions and revising them with the support of the teacher developed student’s questioning skill. The teacher observed students questions change from questions requiring one word answers to “What kind of work do children do?” and “How can child labor be eliminated? (Fobs 2/2/05). Furthermore, in a questionnaire given by the teacher to students, to assess the skills they developed 32 out of 39 students acknowledged that their ability to frame inquiry question had improved a lot.

Enhanced information gathering and summarizing skills

Having to locate gather and process information to answer their questions developed student’s information location and gathering skills. Students developed their skills in identifying appropriate sources of information and accessing information from books, encyclopedias and websites. They found that an important source of information on current and persistent issues is the media and found relevant information from the TV,

Fariya, Dina and Shahida are pseudonyms
radio and newspapers. An important learning was that people are an important source of information and the way to gather information from people is through conducting interviews. In the questionnaire all students acknowledged learning to identify sources of information and gather information from them.

While students were able to identify appropriate material from the various sources they were not always able select main points and note them down in their own words. On the other hand, when students were systematically taught how to interview, record and summarize data they did so extremely well. This indicates that teachers must teach students how to access relevant information and make notes.

**Presentation skills**

Students were quite familiar with presentation modes like charts and reports as they had previously engaged in project work. However, for the inquiry projects they learnt some new modes such as models, use of artifacts, writing an article for the school’s wall newspaper, and preparing a website. One of the strengths of an issue based inquiry is the potential offered for transformation education. In this case the students’ articles could have been sent for publication; students could have advocated for three to four places in school for poor children or as the children suggested funds could have been raised and sent to an organization working for the elimination of child labor. That this did not happen reduces the potential of transformational instructional strategy.

**Interpersonal skills**

As most of the inquiries were conducted by students working in small groups, Students acquired a number of interpersonal skills such as sharing responsibility, helping each other and cooperating to complete the task on time. Their “social skills of working together as a team for the final presentation show that working together brought the best results” (Dina report p. 2). They also developed empathy for children who had to work, realized how blessed they were and wanted to do something to improve their lot. Students expressed,

“Our duty is that we should help them by giving money and books. I think they should not work they should study like we studying and they should get all comforts” (Student report 14/3/05).
Increased confidence

The inquiry process of framing questions, gathering and processing information to answer the question and sharing answers with colleagues resulted in increased confidence of the students. At the exhibition on all the continents “the most knowledgeable were the girls who worked on inquiry. Therefore they were very confident in answering the question put to them” (Dina report p.2).

When it came to going out to interview a range of people students were hesitant. One student reported,

At first when I came to know that we have to interview strangers, I did not feel good because I did not have confidence to interview the strangers. But when I went out to interview I found it interesting even though I faced some difficulties because I had to interview the servants. Through this inquiry I gained confidence which previously I did not have. Now I also know how to collect information from different people” (Students’ Reflections).

Another student shared her uncle’s comments following the interview, My uncle praised me a lot and said that I interviewed him very well. In front of my father I was little shy as interviewed him first. But then when I interviewed my uncle I was more confident (Student’s’ Reflections). From the students’ reflections it appears that the factor responsible for enhanced students’ confidence was the success experienced in interviewing strangers and the appreciation of their performance by others.

In addition to self-reports, the principal of the school who was interviewed by the girls also observed their confidence. She said, I was glad to see the confidence in the students. They were not only confident but they were also able to ask the questions very well (Ffn 13/2/05) and the student who interviewed her stated, before we were frightened when she walked in front of us but now we are able to face her and talk to her (Students’ Reflections).

Inquiry shifted the responsibility for teaching and learning from the teachers to the students. As students realized that they could now answer their own questions that they had acquired the necessary skills and were more confident they became more responsible for they showed greater independence as learners.
Teacher Learning

Enhanced understanding of and development of skills of inquiry

Dina’s previous experiences of inquiry included giving students a topic an asking them to find information and present it in the form of a booklet or chart. All she did was providing the topic and check the product. During the research she learned that conductiong an inquiry requires much more. She wrote in her report, ‘During the inquiry the students have to do certain things. First is to frame inquiry questions... The second thing the student had to do was make educated guesses... The third thing they have to present their information in different forms’ (Dina report p. 2).

Dina realized that she herself did not have the skills necessary to use inquiry in the classroom. She learnt them form Fariya and became proficient as she worked with the students. Both Dina and the students learnt to frame inquiry question. Both of them had difficulty coming up with educated guesses. For Dina, teaching was transmitting the right answer and learning memorizing it. The tentative nature of knowledge was entirely new for her and therefore for the students. While Dina encouraged students to consult text and web resources she now learned that for issue based inquiry people are an important source of information. She realized students did not know how to gather information from this source and that she had to teach the skills step by step. She acknowledged, “I have become more confident as a teacher as now I know how to conduct inquiry on any topic and also how to guide my colleagues in improving their practice” (Ding report, p. 6).

Respect for students and their abilities

Often following observations of students at work Dina expressed surprise at what they could do: collecting information from a variety of sources, creative presentations on Asia, designing interview questions, conducting interviews and collating the data. The research helped Dina question her assumptions about students’ ability. It also led her to question her assumptions about teaching and learning. At first Dina expected students to accomplish a task just because she had assigned it to them; when they failed she blamed them or the context. It was only with time that she realized that she needs to teach not tell, and, that students are very sable and with a little guidance they can accomplish a great deal. Another key learning for Dina was that teaching is not an act of transmission of information but of facilitating learning. She learnt that teachers have to move from being the “sage on the stage” to the “guide on the side” as this facilitates the development independent learners.

Fariya, Dina and Shahida are pseudonyms
Identification of and addressing concerns

The continuous process of planning, acting, observing and reflecting facilitated the identification of concerns and finding strategies to address them. Teaching is itself a difficult activity and adding research makes it even more so Dina found that from observing students she learnt a great deal. As she moved around the class observing and facilitating she realized that "previously only one or two girls worked in the group and the rest were silent observers. Now I learned how to make each and every student work. It also learnt that the more work the students do on their own the more beneficial it is for them" (Dina report, p. 6). However, she was concerned that I was only possible to observe a few students, she wanted to know what the other were doing as well to help her do this she had student record their work which she then collected and analyzed, identifying what worked and issues requiring information collected, Dina then found that the group needed to collect more information in certain areas. She therefore, helped the group identify the information that was missing and from where to collect it (Fobs 21/2/05). Different experiences like the one stated here helped her to reflect on the teaching and learning and learning taking place in the class and identifying and addressing the emerging issues.

Conclusion

The outcomes for students from the use of the instructional strategy of inquiry indicate the need for it to become a part of the instructional repertoire of all teachers. The research shows that teachers must not only be taught the strategy but its effective use in the classroom is greatly facilitated by the use of action research as teachers identify concerns and systematically address them. This study also shows that action research could be powerful methodology for helping to improve teaching and learning in schools. However, institutional imperatives of the curriculum, completing the syllabus and examinations that assess textbook knowledge must be addressed.

References


