UNIT 14 TEACHER AS INNOVATOR AND ACTION RESEARCHER

Structure

14.1 INTRODUCTION

The former president of India Dr. A.P.J.Abdul Kalam in his book 'Indomitable Spirit' fondly remembers his first teacher, Sri Siv Subramania Iyer because of the novel methods he used for teaching and specifically the way he taught how birds fly. Sri Iyer had taught this on the seashore of Rameshwaram, through demonstrations of flying birds. This changed the life of a small boy of a village significantly. Dr. Kalam writes, "*For me, it was not merely an understanding of how a bird flies. The lesson of the bird's flight created a special feeling in me and I thought to myself that my future course of study would have to be with reference to flying and flight systems. Sri Iyer's teaching and the event I witnessed helped me to decide my future career"(Indomitable Spirit, p26).* Sri Iyer sowed the seeds of a future scientist in a small child, who later became popular as the "Missile man of India". He did this by adopting an innovative strategy of teaching that led to a big change in the life of his pupil.

What is innovation? Is it necessary that something new has to be created, for it to be considered as an innovation? You know that teachers need to function as change agents, innovators and researchers. Are these roles related? These questions are important in the emerging educational scenario where teachers are expected to be the facilitators of learning and situate the teaching learning process in the social context and real life experiences of learners. You will find the answers to these questions as you read this unit. In this unit we will focus on the role of a teacher as an innovator as well as an action researcher.

14.2 OBJECTIVES

After going through this unit, you will be able to:

- explain the concept of innovation and its need in education;
- elaborate the role of teacher as an action researcher;
- explain the steps involved in action research; and
- design and carryout an action research to facilitate learners.

14.3 INNOVATION: NEED AND CONCEPT*

Change is the law of nature.Throughout the course of human evolution we find that old order makes room for a new one. Old culture, thoughts, ideas and technologies are replaced by new ones. Systems and organizations that do not change or do not feel the need to change stagnate, decay and ultimately perish. Periodic alternations take place in the goals, structure and the processes of a system. This is also true for educational systems.

While some changes are unplanned, brought about unconsciously and may occur over a long period of time, some changes are planned and brought about consciously.

Such changes may happen over a shorter time span. The latter type of change is built around the theories and approaches put forward by thinkers, planners, administrators and practitioners. These are based on the felt need for change, required for the betterment of a system. The felt need may arise because of socio-economic and political conditions or because of changes in theories and paradigms of learning.

You have been witnessing such a change in the paradigm of teaching-learning in school education since the implementation of NCF, 2005 and the RTE Act, 2009 which uphold the constructivist approach and child centered teaching learning process.

Change is often brought about through the process of innovation. The National Policy of Education (NPE, 1986) recognized the need for innovation and experimentation by teachers and recommended that *teachers should have the freedom to innovate, devise appropriate methods of communication and activities relevant to the needs of and capabilities of and concerns of the community*. At the individual level the motivation to find new solutions to the older problems or new ways to teaching the content may lead to innovations. Again, one can take a leaf from other nations, societies, institutions and organizations and adopt/ adapt successfully tried out practices as per the requirements of one's own conditions and circumstances (Sabharwal & Pandey, 1998). Such innovations, where solutions are imported from outside the system are introduced deliberately and not accidentally.

One of the preconditions to promote innovation is the *dissatisfaction with the present condition.* This dissatisfaction may be due to stagnation or ineffective functioning of the existing educational structures and methods. Uncertainties faced, as well as a desire to fulfill one's own aspirations, and others' expectations can lead individuals to innovate and experiment. In addition, the population of learners keeps on changing every year and learners come from various socio- cultural backgrounds, with differences in prior experiences and exposures. Sustained efforts and creative strategies are needed by teachers to deal with them effectively. Such efforts lead to innovation and research by teachers. It is pertinent to note that some innovations

* Section 14.3 'Innovation: Need and Concept' has been adapted from Unit 7 of BES-053, CPPDPT Programme, SOE, IGNOU

influence the system in such a way that they get accepted and absorbed in the system,while others, not so well accepted by the system wither away over a period of time.

14.3.1 What is Innovation?

There are numerous definitions of innovation and the term has been differently used, interpreted and understood by different thinkers and researchers. The word '***innovation***' is derived from the Latin word '***novus***' which means new, novice, novelty or renovation. New refers to things which have come into existence only recently, are freshly made, and were not in existence or experienced previously. In simple words, it changes the unfamiliar to familiar, and grafts 'new' on the 'old'. The Dictionary of Education, (1977) defines innovation *as promotion of new ideas or practices*. Innovation therefore means a new idea or further development of an existing product, process or method that is applied in a specific context with the intention to create a value added product (Kirkland &Sutch, 2009).

Innovation involves either radical changes, or incremental adaptation of well-known practices. Pedagogical practices have to be innovative because you can facilitate active learning only when you are able to sustain the motivation and interest of students in activities by introducing innovative practices.

Kostoff (2003) suggests that innovation reflects the metamorphosis from present practice to some new, hopefully better practice. Innovation, therefore, involves deliberate application of information, imagination and initiative in deriving greater or different value from resources and encompasses all processes by which the ideas are generated. Most of the literature in education however, defines innovation as the implementation of not only new ideas but also of improved ideas, knowledge and practices (Mitchell 2003).

None the less, newness is a relative and context specific term. What is new for one person or a context may not be new for another. So what should be treated as innovative? An innovation is not something new to the education system as a whole but if it is perceived new in a particular context; it is considered innovation for only that context. According to Rogers, as cited in Kirkland and Dan (2005, p. 11)

'If the idea seems new to the individual, it is an innovation'. The extent to which something is new according to a given social context, it is crucial in identifying innovation. So the concept of 'smart class' may be innovative for one social context whereas it may not be considered as an innovation in a very advanced society where advanced technologies are already in use.

The National Council of Educational Research and Training (NCERT) organized a national seminar on 'Innovations in Education' in 1977, where some of the significant innovations were discussed and included in a report published for wider dissemination.

According to this report an innovation should be:

- new to the system or environment as perceived by an individual;
- better than what is already in existence;
- a deliberate, planned and not haphazard effort;
- contextual to local system or environment or conditions;
- instrumental in bringing change in the behavior, learning or attitude of an individual or group of individuals;
- conducive for making unfamiliar as familiar;
- suitable for achieving results of the predetermined goals;

- be positive in nature; and
- something, which results in the improvement of a system.

14.3.2 Types of Innovation

Innovations have generally been classified into four types that are as follows:

Product innovation, which involves development of new products such as new models of cars, television, fridge, food items,educational kits such as science and mathematics kits, for instance those developed by the NCERT, educational toys and so on. A number of school teachers have also been experimenting and producing innovative educational materials.

Process innovation*:* It involves development and implementation of new and improved delivery mechanisms/ methods that may include significant changes in techniques, equipment, software etc. During your pre- service teacher training programme you must have read about micro teaching, models of teaching, programmed instructions and the like which are popular examples of process innovation that have been widely accepted throughout the world.

During the last few decades a number of innovative methods of integrating technology in education have been developed and used. The Indira Gandhi Open University (IGNOU) and the NCERT have successfully used teleconferencing and video conferencing techniques for pre-service and in-service teacher education programmes. These are all examples of process innovation. Few years back you were using chalk and talk as the only method of teaching. However, today Information and Communication Technology(ICT) plays a major role in teaching learning process and this has been possible due to process innovation in the field of education. Therefore, while computer is an example of product innovation, computer assisted teaching learning is an instance of process innovation.

KVS teachers making a difference

Ms. Harminder Kaur Suri has applied ICT for teaching science. She has been able to create a joyous and participatory learning environment which raises the level of performance of children. A website on 'Flying Jewels',is a collection of information on butterflies which is a documentation of the work undertaken by her learners and showcases her achievements.

Realizing the limitation of the conventional classroom and the need to enhance its scope, Ms. Lata Ramchandran, has experimented by bringing in a variety of resources. She has been creating visual directories, collecting and organizing students' collections and training them to take up systematic study in small groups and share their learning with others. She herself has been using ICT and has also been encouraging her learners to use a variety of ICT tools and has thus been able to inspire her students to undertake tasks well beyond their class level.

Ms. Jainus Jacob has integrated a variety of exploratory techniques to develop in her learners a keen interest in the natural environment. Her learners' exploration of birds is a good example of how young children can work beyond the level and confines of a conventional classroom. She has helped learners make presentations, search and download relevant information, shoot pictures and host a website as a part of their routin elearning.

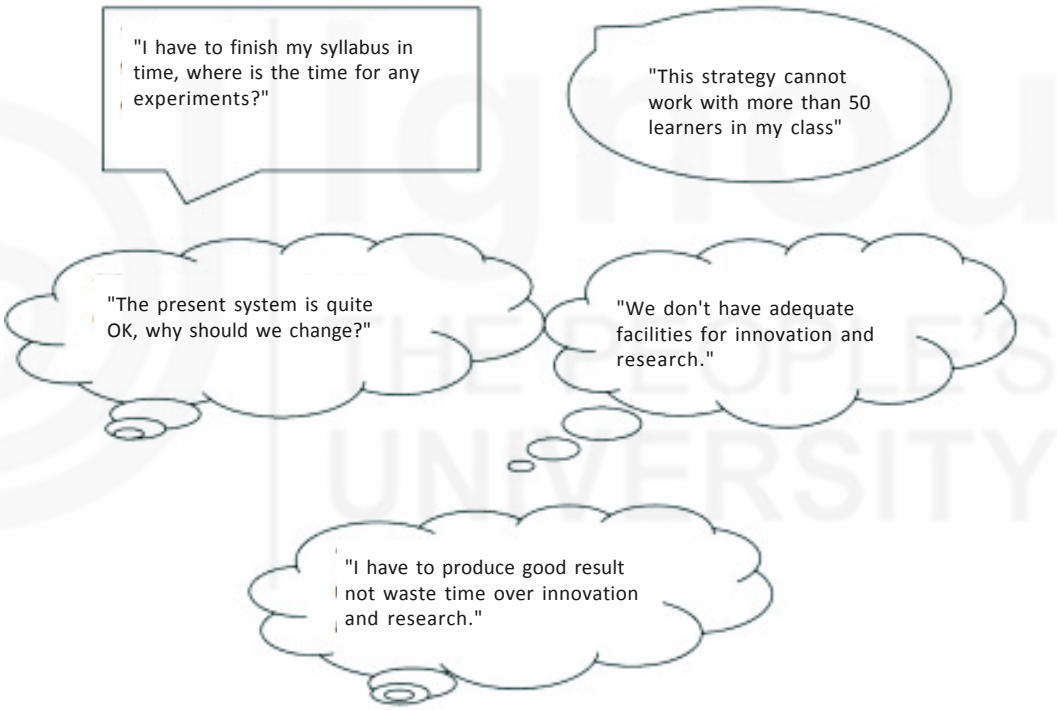
Source: National ICT award for school teachers (2010-2011), MHRD

Paradigm innovation involves changes resulting from major shift in thinking. For instance, the shift from behaviourist to constructivist approach to learning has brought changes in the teaching learning process in schools over the years. You are observing such a paradigm shift since the implementation of NCF 2005. Open book examination system, making board examination optional in Class X, are examples of paradigm innovation.

The fourth type of innovation relates to ***positioning innovation*** which suggests that the product was originally innovated for a different purpose but later on repositioned for another purpose. A very popular example of positioning innovations is medicinal drink called 'Lucozade' which was originally used to be a medical drink but was repositioned as a sports drink.

Increasingly it is being recognized that to promote greater flexibility and creativity in teaching and learning, for contextualizing learning and to ensure more personalized and participatory teaching learning process, there is need for teachers to be innovative.

But are teachers willing to experiment and innovate? Let us read some general reactions of teachers whenever there is any discussion on the need for teacher to be innovator, change agent or researcher.



These common reactions of teachers are indicative of their resistance to change the traditional practices and try new or innovative methods. But are all the teachers like this? If Sri Iyer had not taken the initiative to explain how birds fly through his innovative strategy of teaching, the impact it made on A.P.J. Abdul Kalam may not have been there. There are many teachers like Sri Iyer who go beyond the textbooks and the four walls of classroom to make teaching learning effective for children.

Some examples of your colleagues involved in carrying out innovation have been mentioned. It is therefore clear that innovation does not always necessitate investing considerable amount of money and using expensive gadgets to produce a new object or method. Instead with little imagination and creativity you may develop a

Teaching Learning Material (TLM), or a teaching strategy that can make your classroom process interesting and effective. Some examples of teachers of rural Gujrat who worked imaginatively and innovatively to facilitate learning are as follows:

Shankarbhai Sendhav works as a teacher in the Krushi Adarsh Anupam Prathmikshala, Tuwad of Sami, Patan, Gujarat. Over the years Shankarbhai has been involved in various experiments to improve academic performance. For instance, to improve the reading and writing skills of children, he has grouped the letters of the alphabet according to their shapes. He introduced another experiment to retain children in school. This experiment had two objectives; one was to achieve retention and the other to give children knowledge of real life and practical learning along with subject knowledge. He started a movement called'Garden Library' and appointed five learners of Class 7 as implementers.These learners would place some children's books in the garden under some tree. When the teacher was not there or during the recess, the children would go there and sit and read these books. Taking children who had never been outside their village on a visit to Nal Sarover, a bird sanctuary was yet another initiative that helped create in children a fondness for schooling.

Swinging library

The school where Prajapati worked was a single teacher school. Hence,keeping learners engaged when he was occupied with administrative work or during recess hours was a problem. He formed a 'swinging library'. He took a long wire and strung it up. On that wire he hung some story books with the help of clips. The learners of the higher classes had to take the books during the recess and the children of the lower classes would sit with them. The older learners would read out the story and the others would listen. The books had to be replaced after this. The books were changed every third or fourth day. With this experiment, children's' reading skills improved. Also, the learners started singing songs and telling stories during prayer time. There was no complaint related to mischief during the recess hours. Thus the children became familiar with Panchtantra, Ramayan and Mahabharat and began to tell these stories to their parents.

Learners' Store of Mathematics Learning

In order to teach math through practice, Karshandbhai started a learner store, "Vidyarthi Grahak Vastu Bhandar" in the school. The children looked after purchases, sales and all accounts, using the arithmetic they learned in the class. In order to keep them alert, a coordinator was appointed. The activity was reviewed every month. The outcome was that the learners developed the habit of keeping accounts. The children discussed the financial management of the store and all of them participated actively in the process. The success of this activity made them think of starting a savings scheme. The school then formed a cooperative savings bank.

Source: ***Chand, et al., (2011). Learning from innovative primary school teachers of Gujarat. A casebook for teacher development.Ahmedabad. Retrieved fromhttp:/ /teindia.nic.in)***

Check Your Progress

Note: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit.

1) What are major types of innovations? Suggest two examples for each based on your school experiences.

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14.3.3 Process of Innovation

Generally an innovation is the result of the use of various possible approaches to satisfy the identified needs and interests. An important step in the process of innovation is tryout and evaluation. Equally important is the approach of modifying the response in the light of the feedback received. This process goes on with improved practices and is shown in the following diagram (Figure 14.1).

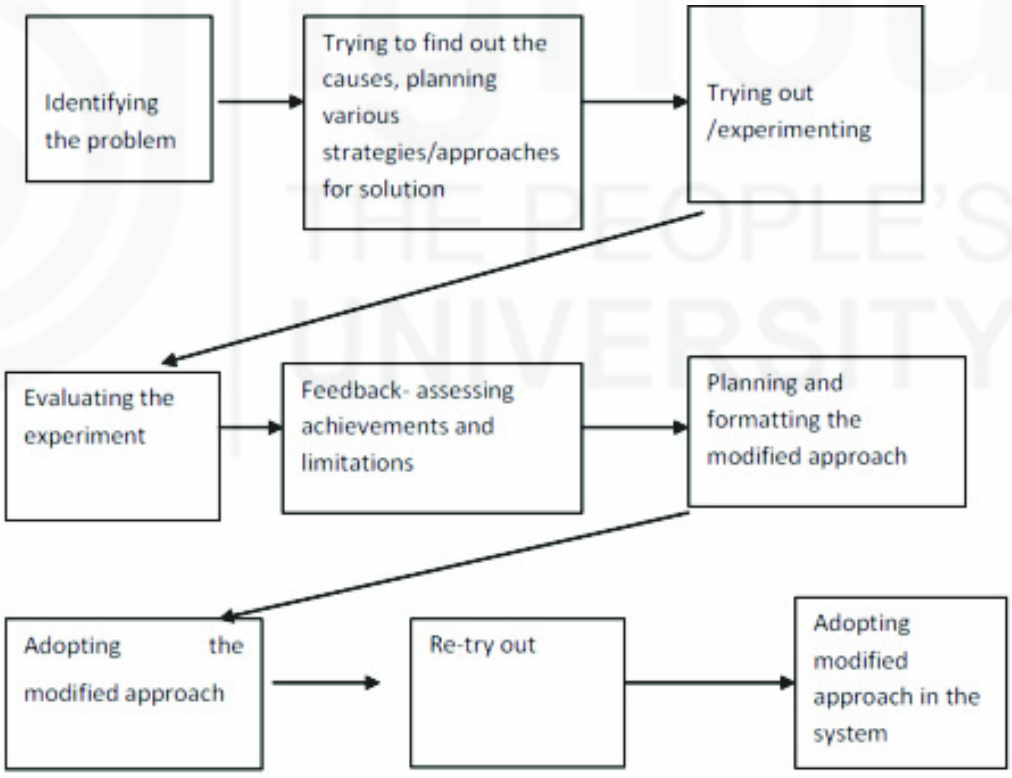

Fig. 14.1: The Process of Innovation

It is clear from the diagram given above that innovation is a carefully planned activity and research is integral to innovation. The cycle of innovation starts when you either face some problem for which you seek its unique solution or when you want to do something new. In all the examples given above you will observe that teachers were interested in making their classroom processes more effective. Once the problem is

identified the teacher frames various alternative approaches or strategies to resolve the problem. In the process s/he reflects on the pros and cons of various alternatives from different perspectives in terms of time, suitability of the alternative chosen for the problem at hand, age and class of learners, finances if any involved in it and so on. S/he then applies the most suitable alternative to seek solution for the problem.

But the process of innovation does not end here, because, based on the experience of the tryout of the strategy, it is further refined/ changed or modified and the finished product is adopted by the teacher or the system as the case may be. In the whole process the teacher is continuously engaged in reflection in action, as well as in reflection for action and research. The research is however, not as sophisticated as fundamental research but is action oriented and is known as Action Research or classroom research.

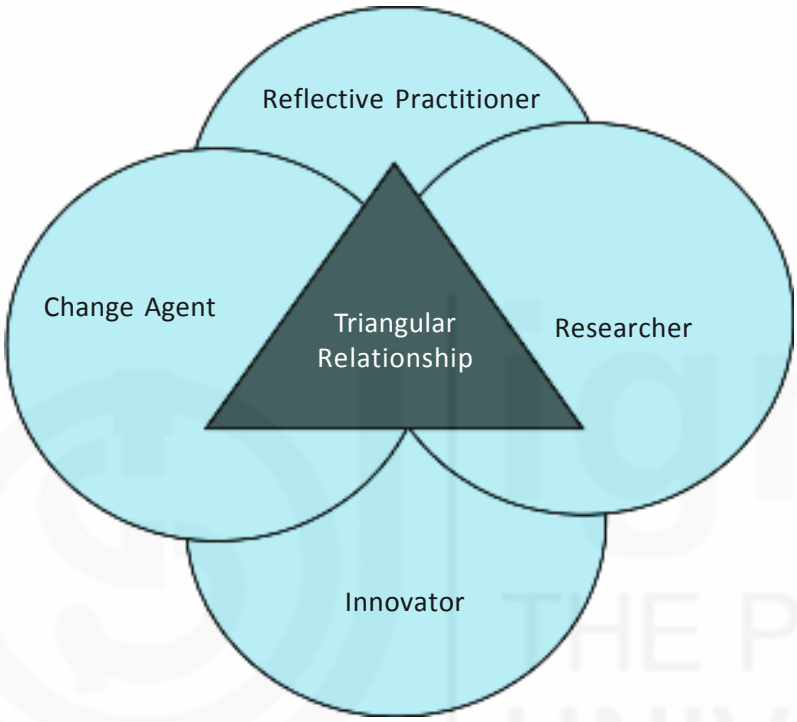

Fig. 14.2: Teacher as Innovator and Researcher

You may take note of the triangular relationship (depicted in Figure 14.2) that exists among three roles of a teacher- reflective practitioner, change agent, innovator and researcher.

An effective teacher continuously reflects on content, context and procedures of classroom processes, and is an innovator, who develops new strategies, techniques and materials for teaching or changes existing ones whenever better ones are found or when the existing strategies no longer provide substantive learning experiences. Such a teacher is not dependent only on traditional chalk and talk method but uses a combination of relevant strategies such as question-answer, discussion, collaborative group works, role play, visual media, experiences of children, field trips and the like to sustain children's interest in learning. Classroom teachers who conduct such research are "reflective practitioners" who make exemplary contributions to instructional improvement (Suter, 2006). However, while research is integral to innovation, all researches do not lead to innovation.

Activities

1) List few topics/areas in which you feel need of innovation. Suggest few innovations in those areas and discuss with your colleagues about those. Prepare a report of discussion for feasibility of innovations suggested by you.

2) There is discrimination against girls not only at home but also in school. As a teacher develop an action plan for the removal of discrimination against girls in your class.

3) Identify an instance of process innovation brought about by your colleague. What difference did it make to students' achievement?

Check Your Progress

Note: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit.

2) Reflect on the need and importance of innovation in secondary education.

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14.4 TEACHER AS AN ACTION RESEARCHER*

Teachers often see research as an additional task hampering their day to day teaching work. As teachers we are often comfortable with external researchers who undertake different school related issues and their findings for improving our school system of education. Do we ask ourselves that were these issues of our concern? Finally the findings that are shared with the school, are they appropriate for our school? Do we find it easy to relate these findings with our school and classrooms? We must realize that when school based research is viewed as separate from teaching, teachers do not conceive of themselves as researchers. Teachers must become leaders of their schools by being able to identify their problems and looking for solutions for school improvement through their own research. As teachers how can we discuss our experiences; how we can identify a rich variety of concerns and questions of a contextual nature that require to be explored. Educational problems and issues are best identified and investigated where the action is taking place, i.e. at the classroom and school. Teachers taking up their own research after identification of their problems will make them better researchers to address school and classroom based challenges. This type of research taken up by educational practitioners has higher chances of making the classrooms and schools more vibrant learning centres. This is because it is 'my school', 'my classroom', 'my challenges' and the research undertaken is 'my research' and the solution reached is 'my solution'. This is action research and as teachers, to us, it is "*My Research*".

* Content of Action Research has been adopted from Handbook on Action Research originally written for DEP-SSA, IGNOU

14.4.1 What is Action Research?

Action research is a process through which teachers discover and learn through systematic investigation. As teachers we must understand that action research is a part of classroom teaching. It helps to further build on the understanding that teaching is influenced by personal knowledge, trial and error, reflection on practice and conversations or dialogues with colleagues, students and other stake holders within the school system.

Action research would be an ideal exercise for the professional development of teachers that promotes three basic academic activities:

i) **'collaborative inquiry'** meaning school teachers and administrators investigating together in collaboration on school education related issues,

ii) **'reflection'** that means a continuous thought process by teachers on understanding their various activities and how they perform in the classrooms, reflecting on their classroom practices and

iii) **'dialogue'** where teachers discuss issues with other teacher colleagues and administrators within the school system and generate a dialogue on school based issues.

Action research is thus a process that allows collaborative action, reflection on activities taken up in the school and generating discussion on key issues of concern that require to be addressed. It prompts us to evaluate our own instructional practices in the classrooms.

We must make it a point to identify how these practices impact on the comprehending skills of the children. We can further continue to monitor student learning through such continuous school and classroom based research. Such simple research and their findings can be used to reach certain solutions for the existing school/classroom based problems. Solutions to one problem may not be the end of all problems within the school system. There could be further problems that come up in the process that are to be addressed.

Action research is thus a continuous and reflective process where, we teachers reach at various decisions in favour of our schools and classrooms. Analysis of findings based on various school/classroom based data help to reach such decisions.

Check Your Progress

Note: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit.

3) Action research is 'My Research'. Comment.

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14.4.2 Approaches to Action Research

Within the action research process, as teachers we may choose to focus our study on one learner, a small group of learners, a class, several classes, or a whole school. The focus and level of participation among school colleagues depends on the level of support, needs, and interests of the teachers' and school.

We must have knowledge on what are the various approaches to action research. Emily Calhoun (1993), described three approaches to action research: ***individual teacher action research, collaborative action research,*** *and* ***school-wide action research***. Even though the environments are different, the process of action research remains the same in all the three approaches. This process uses classroom and school based data to identify problems, develop a plan of action, collect and analyze data, use and share the findings, and make instructional decisions to improve student learning continuously.

Individual teacher action research focuses on studying a problem or issue within a single classroom. In this kind of approach to research as teachers we engage in individual research that may or may not have support from our colleagues and our administration. They may or may not be willing to brainstorm, and discuss the topic of action research. Although just one teacher may become directly involved in action research, support from knowledgeable educators at the school or district level is important for the research to be successful. For example, inability of the learners to read, to understand certain concepts in mathematics, to comprehend what they read, and some other issues that are specific to a particular school or classroom.

Collaborative action research focuses on studying a problem or issue within one or more classrooms. This approach involves more collaboration and asks for teachers and administrators to work together in studying a particular problem in many different ways. For example co-teachers in one classroom studying a specific group of learners (e.g. gender), a team of teachers focusing on a grade level issue (e.g. transition rates), a teacher and district educational personnel studying a particular instructional practice, a group of teachers in the same school studying the same instructional concern, etc.

This collaborative action research approach promotes a joint effort involving more than one teacher in a specific area of study. Opportunities for sharing and dialogue are more likely to occur as the issues being researched are a common concern.

School-wide action research is taken up as a school reform initiative. Every faculty member of the school is involved in studying a specific issue identified from school based data. This approach requires adequate support from the administrators and teachers, and the results can lead to school-wide change. Successful school-wide action research is directly related to initiatives contained within the school improvement plan. This can be of a more vast nature encompassing various issues related to school improvement. It could also consider issues not directly related to the school but has strong impact of related school improvement indicators.

Please refer to the following chart for examples on lead research questions in tune with the approaches discussed above;

Approaches	Level of Focus	Level of Participation	Example of Research Question
Individual	Single classroom	Individual teacher	1. What happens to learner's understanding of specific arithmetical concepts when I incorporate exploratory exercises into the teaching of arithmetic in my classroom? 2. How can I improve time management skills to use my class time more effectively? 3. What happens to learner behaviour in classroom when I start my class with a brief mind-relaxing activity? 4. How can I improve my organization of cooperative group learning to increase involvement of each student? 5. How can I increase my instruction in writing to increase learner's interest?
Collaborative	One or more classrooms	Head teacher, Co-Teachers, School administrators / Teachers within a district, etc.	1. How can school completion rate at primary and elementary level be increased? 2. How can implementing "Peer Tutoring" be an effective method to reach out to each learner in large classrooms? 3. How can we construct and use learner feedback to improve child learning? 4. How can we improve our ability to adapt instruction to the needs of learners with learning disabilities? 5. How can we effectively implement a more positive behaviour management plan?
School-Wide	School-Improvement	Whole faculty	1. How can we teach our learners to organize,analyze, and interpret what they read? 2. How can loud model reading improve learners' abilities to organize, analyze,comprehend and interpret what they read? 3. How can implementing a school-wide positive behavior support programme improve learners' safety and increase appropriate learner behaviors within the school? 4. How can learners' participation be ensured in the school assembly? Will this have impact on school participation? 5. How can exercises of a role play be used to reduce gender stereotype among children in the schools?

Activity 4

Identify specific school based issues relating to individual, collaborative and school wide approaches of action research.

14.5 PRE CONDITIONS FOR TAKING UP ACTION RESEARCH

Any research will call for objectivity and taking care that ongoing activities within the unit of study (the school in our case) do not get hampered. One needs to take care that its functioning does not come to stand still. We also need to ensure that in our efforts for finding solutions to the existing problems we do not further add to the existing problems. Therefore as we take up these action research projects we must strictly maintain certain ethics. The following sections will discuss about certain pre-conditions for taking up action research that we must follow sincerely.

Qualities for Undertaking an Action Research: There are certain qualities that we must cultivate within ourselves as teachers when we take up action research.

Though it is regarded as small research, this effort has the ability to provide solutions for existing school and classroom based problems. We must cultivate the art of identifying local resources, and make use of these resources to find solution for the identified problems. This will help in making way for developing and monitoring changes in the existing teacher learner activities and instructional practices. As mentioned above there are certain qualities that practitioners of action research must possess. These include;

i) a deep understanding of the system of education,

ii) an in-depth vision and insight into the school and classroom based activities and practices,

iii) quest for new knowledge, through seeking solution to existing concerns,

iv) a desire for improved performance in schools and classrooms,

v) self-reflective activity, that include self-criticism and self-analysis, and

vi) willingness to effect changes through constant identificationof issues that require strengthening.

These are the basic qualities of practitioner of action research and simultaneously have the capacity to offer other colleagues a better understanding of what happens within our schools. These qualities of an action researcher help to set up a decision-making cluster that guides the various levels of school planning exercises, keeping the school context in mind. This approach then helps to have in place meaningful and effective school improvement plan that accelerates the school improvement efforts.

Resource Support for Action Research: Identification of local resource for action research is very important to complete a research project successfully. It is primarily the responsibility of a school administrator to create the need for action research and establish a desirable environment for conducting school and classroom based action research. The administrator can in the process smartly identify potential leaders within the school system. They could be in the form of a school inspector,a school principal, a senior teacher or even a new teacher who has the vision to bring positive change in the school system. As school principal and administrators play a major

role in identifying such leaders, they can carve out way for new vision and bring about change in the existing system. The role of the experienced school staff can be vital as they have the ability to meaningfully extend support to every new initiative. In case these teachers and staff are not in a position to take up action research independently they can provide inputs from their past experience. At some point of time during their experience as teachers or assistants or even general staff they have made some improvisations or the other. They have taken up such initiatives through trial and error methods, their efforts and findings may not have seen proper documentation but the outcomes still remain with a few of them. All these information could be gathered and not only form a good basis but also guide in designing further strategies for school improvement. Therefore all experiences must be gathered and put to use. All small information has something to reveal and throw some light on designing new strategies. In the process everyone feels they are contributors and own whatever change is being introduced. Such ownership is crucial for the new practices to be sustained and further dissemination and up-scaling.

Teacher's Preparedness for Action Research: As teachers we must realize that our primary role in the schools is to impart quality teaching learning and we must not compromise on this time. We must therefore ensure that in the process of taking up action research we do not reduce the time assigned for quality teaching learning. There is need for teachers to prepare themselves to take up this task. Let us look into some of the conditions that we need to keep in mind before taking up any action research. These conditions may be put down as follows;

- Teacher's primary role is to teach and any additional effort to undertake an action research must not interfere with or disrupt our commitment;
- The method of data collection must be a regular teacher activity so that action research can become synonymous with teacher's role in the classroom;
- Teachers must remain committed to the identified research problem under study;
- The methodology selected must be simple and reliable, which helps us to formulate a hypotheses (specific questions to an issue or problem) confidently and also answer such hypotheses;
- We must keep in mind certain ethical procedures when carrying out any type of research and take necessary help from resource persons in the school or cluster,we must not let our previous views to take over or influence our currentresearch processes; and
- Findings from our research should find sustainability when all members of a school community build and share a common vision. Therefore we need to make efforts to generate consensus on school and classroom based issues that we are trying to research.

It is important to keep in mind certain ethics prior to conducting any kind of research.

The above mentioned pre-conditions are very crucial and teachers, administrators and any other school staff interested in taking up action research must internalize these preconditions. This will help in ensuring that there is a systematic and objective inquiry,which is not influenced by preconceived ideas or experiences.

In the above paragraphs you have understood pre-requisites required to take up action research and qualities that an action researcher must possess to complete any such initiative.

Check Your Progress

Note: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit.

4) What are the basic qualities for the practitioners of action research?

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14.6 QUALITY ISSUES IN ACTION RESEARCH

It is always advisable that before taking up any action research it is important to understand the complete school situation. To work out a situation analysis the following questions could be of use to the teachers.

School based issues*: Take stalk of school and classroom data, what are the gaps that need to be filled to ensure students learn and are higher achievers in school?*

For example- Does the existing school physical and human resource infrastructure measure up to the quality infrastructure standards? What are the gaps? How can these be addressed? Who will you approach to solve the problem? Can you document all the processes you are following to ensure this?

Do you think you are able to identify gaps in school functioning? Can you identify these issues and formulate a research proposal for yourself? Under the given conditions what *k*ind of support, motivation and incentive do you think could be extended to the teachers to take up action research?

Learner achievement issues*: What is it that we need to know, in order to ensure that our learners achieve their learning goals? What are the specific learning difficulties among children? How will we know that learners are achieving their academic and behavioural goals? For example-*Why are children not learning in the classrooms? *What instructional practices do not have positive results on learning? Is there a way to change the current practices?* What does the learner related individual classroom data reflect about learning? Are the teacher's instructional practices yielding desired results? Is the organization of children in the classroom leading to poor achievement among learners? Are there any home based issues that require to be taken up by teachers? How is the child's nutrition level contributing to low achievement levels?, etc.

Classroom environment issues: *How does the classroom environment influence child learning? Do the size of classroom and number of children in the classroom contribute to learning? Is there any impact of the number of teachers in the*

classroom on classroom environment? For example -Is the classroom condition up to your satisfaction? Is there enough space for children to sit and do their class work? Do children feel comfortable and safe in these rooms? Is there enough light and ventilation in the rooms? Given the current classroom conditions what can teacher do to make teaching learning more effective? Why do some children not attend classes regularly? Do classrooms have proper blackboard that children can see properly and teacher can use to instruct properly? What kind of relationship do you have with your learners? Can you say that your classroom environment is friendly?

Teacher training issues*: Are the instructional practices in line with what were taught during your teacher trainings (pre-service or in-service)? Do these practices have any positive impact on learning? You could ask questions like*, Have you as a teacher gone through any professional development training? Do your teacher training workshops have adequate activity sessions that takes care of your classroom situation? Are you able to improvise from the training programmes at the time of classroom transactions? Were you able to clarify your teaching-learning difficulties at the teacher training programmes? Do you think teacher training should include something more?, etc.

Classroom transaction issues*: What instructional practices or techniques should we investigate and research? How are we going to learn about these instructional practices and ensure their impact on student learning? For example-* How many children attend your class? Do you think you can reach out to each of them? Do your classroom transactions match with what you were taught at the time of your in-service training? What will you evaluate during classroom instructions that will increase your professional learning? Do you have resource support for this kind of development? How frequently do you make use of TLMs? How frequently do children use TLMs? Do you organize the class into groups to conduct certain specific activities? Can children learn better through peer activities? Can these be integrated with your classroom practices? Do you follow an academic calendar? Is secondary or seniorsecondary education curriculum is available in the school and referred by the teachers, etc.

Community based issues*: How often have schools involved community members in developing a school development plan? How can community members involve themselves for improving schools? For example-* As stakeholders can community contribute to school development in monetary terms? Can the community members be motivated to participate in assisting or volunteering with teachers in schools? What will motivate SMC members to participate actively in the school development plan? How active is the SMC in ensuring regular school attendance of children? Does the community participate in ensuring a child friendly school environment? How does the PTA/MTA add value to learner achievement? Can this be further strengthened?, etc.

Combining quality issues: *How will you use the gathered information to make significant decisions regarding school improvement? Who will you discuss your findings with?* What kind of evaluation will you do with all the data collected on school and classroom? Who will you work with to develop evaluation tools?

What kind of inference can you draw using all data from various indicators?, etc.

The above questions will enlighten the teacher and education administrators on what to focus on or what school related issues could be of concern against the existing situation.

The above paragraphs have furnished us with information on how to focus on quality issues relating to elementary education prior to taking up action research. You have also learnt how to identify issues relating to your school and classroom for action research.

Activity 5

Enlist the school based indicators to work out a 'situation analysis' of your school.

14.7 STEPS INVOLVED IN ACTION RESEARCH

As your pre-research exercise, you have the school based situation analysis available with us. With the help of this unit, it will be more convenient for you to point out areas where the school requires strengthening. Once the pre-research stage is over, you can move on to actually identifying school or classroom related problems and working out their solutions. In this section of the unit, we will gather information on the various steps involved in initiating and completing an action research project.

14.7.1. Step One: Identifying the Problem - as the first step we need to identify an issue and begin to formulate questions for which we are looking for solutions. As the first step to action research, we will choose something that is important to us as a teacher: for example, we can look at some of our own teaching methods or at the way students learn. We can begin with a simple and manageable project that can be handled. We need to keep in mind that it is not possible to change everything at the same time. We only need to begin somewhere so that others start thinking on initiating their ideas to address the issue of their concern. Improvement can begin in small measures, taking one problem at a time and finding a solution for it.

We can also start off with a question, like "Why do the learners not respond to my mathematics class?" Think about how you can undertake such a problem.

You may ask yourself whether all the learners are not responding or a few? For example "What happens when I am teaching a particular concept?" Identify this concept that is bothering you and your learners are not responding on. The concept in question will be related to which grade learners are we referring to? We have to understand whether it is the learners who fail to respond in the entire school or only a part of it? Thus we need to define how big or small the problem is i.e. an understanding on the magnitude of the problem. The solution we look for will be based on this understanding.

14.7.2. Step Two: Reference Work - once the problem has been identified it will call for some reference work. This will be the second step of the action research.

We require finding out more about our problem and the various ways in which it has been addressed in the past. For example we must find out the'mathematics concept' to which the learners have not been responding. We need to know how learners' have responded to the same concept in other schools and classrooms. We need to find out if there is an inherent problem in transacting such concept. We need to read, discuss, and think over it and try to identify what will work in our context.

There is a need to involve more school teachers in the project and talk to them about our concerns and find out their opinion on the issue. We can take their

suggestions and further go on to refer to books and journals, and also find out if there are some other studies available on our topic of concern. We must explore with as much as we can, as this will provide us with greater clarity on our initiative. As we move on with our reference work we must not lose focus. We must try and bring in local resource persons who can provide inputs on where to limit ourselves. We may have to revisit our question and make changes wherever required maintaining alignment with our major issue of concern. If the need arises, we can change our direction and work on something more relevant and manageable. Action research provides a lot of flexibility and that allows us to be sure about what we are about to do.

14.7.3. Step Three: Initiating Action - After all the reference works, discussions and exchanging ideas it is likely that we will come up with newer ideas. On the basis of these new ideas we will make changes and try out what seems appropriate for our school or classroom. These ideas will generally be influenced by what we have gathered from others experiences and other studies. We must try out these ideas in the classroom. For example we try and teach the "mathematics concept"using a different TLM, or using a different method. Next we need to find out if children are engaging with this new form of teaching–learning. Have we been successful in making learners respond to the new form of teaching? Are the learners responding?

14.7.4. Step Four: ***Collection of Data*** - At this point we will face the challenge of how to measure the results? This is where we will make use of wide variety of data collection methods. Depending on the kind of research we need to carefully identify our data collection method. It could call for designing questionnaire schedules for interviews, work out an observation format, and develop formats for recording various focus group discussions or simple discussions and any other evaluation methods like a case study. We need to ensure that our research must be systematic and rigorous so that our work gains credibility.

14.7.5. Step Five: ***Evaluation and Analysis*** - once the project has taken off, at every step we have to evaluate and reflect on the responses we start receiving on the new ideas introduced in the classroom. We must gather all the data on some simple formats and analyse them. With concurrent evaluation and regular reflection we can find out if our intervention is feasible and is making the desired change or not? We can involve resource persons like BRC/CRC coordinators,school principals who have an understanding on our problem and their opinion will make some value addition to our effort. Their inputs can prove a different perspective that we have been over looking and is important for us to consider.

The more people we can take along with us will help us generate greater consensus on the research findings and easier for us to disseminate if established. Contribution from them on the final report will bring them together to take up further research.

14.7.6. Step Six: ***Drawing Findings*** – once we are ready with the findings that suggest solutions to the existing problems we need to implement this as part of our classroom practice. We need to ensure that the solution has helped to improve or amend our previous practice. We are now able to do things differently in the classroom. We need to question ourselves that have we learned from the project.

We need to keep in mind that action research is empowering – it allows us to change our ways of classroom transactions. We can continue to make changes all the time, and continue to grow as a professional.

We need to ask ourselves that have the questions to our concerns been answered. As we worked towards one concern did we come across other issues that require our attention? Did we expect what we actually found? How are we going to share our results with the others in the education system? We further need to consider whether these findings are useful to the others in our school/community? We need to present our findings to others – we can give a talk, make presentations at state level meetings on our initiative and how it hashelped the students and teachers.

We have to convey that the changes happened because we altered the existing practice. We must observe if we have been able to evolve as higher level professionals, and have induced a different set of relationships within the school and classrooms, teacher to teacher and also teacher to students.

14.7.7. Step Seven: Document our Findings – Since action research is a cyclical process and continues from where it ends we cannot stop with drawing our conclusions. You must also share with our colleagues what you found through your research. We must therefore ensure that we have documented each step of our research. We can further prepare a full-fledged study report and send to district and the state level stakeholders to get their feedback. The report could be further circulated for dissemination and up-scaling wherever feasible. The specific requirements of the report will differ depending on what you've done; however, all of the reports have a few things in common. Format for reporting an action research is discussed in the next section.

Check Your Progress

Note: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit.

5) What is the process of identifying an action research problem?

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6) How will you draw findings from your action research and disseminate them?

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14.8 FORMAT FOR DOCUMENTING YOUR ACTION RESEARCH

After completing the research, documenting all the findings is a challenging task. It is expected that this document will be shared at different platforms. Therefore it must be systematically and clearly documented. Following is a format that we could follow to document the entire action research.

Introduction: this section of the report will include;

- An overview the research project that will include the research topic, the reasons for undertaking the research, a background to the area of research,and how do you think this will improve your classroom or school situation.
- Narrate how you identified your research question and how you involved other school administrators, teachers and staff in framing this question.

***Objectives*:** Mention what were the objectives of your research

***Research plan*:** While documenting the research plan we will include,

- Elaborate on the school context, here we can bring out certain findings from the situation analysis that helped in identifying our current area of inquiry.
- Description of what we wanted to do and why we identified it. How relevant was it to our school context and how will it make difference in augmenting the quality of our school.
- The research approach and model that have been used in the process of action research. How will this approach and model facilitate our research?

***Sample and Methodology*:** Provide a simple note on the research sample (if any),

- Why this sample is of concern to you, how will focusing on this sample help in quality improvement of your school.
- Mention the types of data collection techniques that have been used to gather all the required information.
- The process used to take up the analysis and who are the persons involved at the time of analysis.

***Findings*:**

- Your key findings
- Discussion of your findings in terms of the research question

Conclusion

- Draw conclusions on the findings.
- Reflect on how our findings will contribute to a change in educational practices for us, our colleagues and our school.
- Consider how your findings will influence the next cycle of action research.

In this section we have understood why it is important to have a systematic and articulate documentation of each step of our action research project. We have also understood the different heads under which we can document the entire action research project.

Activity 6

a) Identify five topics which you find suitable for action research.

b) Choose a topic for action research and give detailed account of the tasks to be done at each step in an action research proposal.

14.9 LET US SUM UP

We have observed that innovation and action research are two activities supposed to be executed by the teachers with common aim to improve the practice and situation of the practice. Both resulted in observed changes. More often innovation is brought through the process of action research. It is clear from our discussion that innovations are sometime subjective and action research is an objective process. Thus to make innovations valid, durable (long lasting) and goal achieving, it become essential that innovations should be supported by researches, especially action researches. After going through this unit it is clear to us the goal of innovation and action research process is similar. As teachers are required to improve their practices regularly so it is beyond any doubt that teachers by their professional requirement are constant action researchers and innovators.

This unit will help you to plan out your action research project. We have also tried to identify the different issues concerning quality improvement of schools and classrooms, and have tried to understand the feasibility of conducting action research on those issues. Findings emerging from the action research can be shared at different platforms with feasibility for replication wherever possible.

14.10 UNIT END EXERCISES

1) What is innovation? How do you find the teachers as innovators?

2) Define the term innovation and write its characteristics. What do you observe as innovative practices in education?

3) Why teacher should be action researcher? Write the characteristics of action research.

4) What is action research and explain different types of action research? Describe in detail the process of action research.

14.11 ANSWERS TO CHECK YOUR PROGRESS

1) Product, Process and Paradigm (Suggest examples based on your experiences).

2) Reflect based on your understanding after reading the section on innovation.

3) Action research is a continuous and reflective process where a teacher reaches at various decisions in favour of his/her schools and classrooms. An action researcher is primarily a teacher who solves his/her day-to-day teaching learning problems.

4) Following are the qualities required:

   i) a deep understanding of the system of education,

   ii) an in-depth vision and insight into the school and classroom based activities and practices,

iii) quest for new knowledge, through seeking solution to existing concerns,

iv) a desire for improved performance in schools and classrooms,

v) self-reflective activity, that include self-criticism and self-analysis and

vi) Willingness to effect changes through constant identification of issues that require strengthening.

5) & 6) Answer yourself after reading section 14.7

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