

TEACHERS AS RESEARCHERS: REPARATION ENDEAVOR

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Instructional process is aimed at accomplishing the desired learning outcomes. But some times teachers may fail to achieve the instructional objectives. In such instances teachers attempt to find out reasons that come in way of achieving the instructional goals. The reasons may pertain to student behavior, curriculum or teacher behavior. In order to improve their classroom practices for initiating desired learning outcomes, teachers often encountered with such question as why expected outcomes are not achieved, what are the impediments that caused non accomplishment of learning outcomes, how to improve instruction for better learning and so on. One of the major reasons for such situation may be due to gap between what teacher planned to do and what has been done in the actual classroom instruction. Teachers are expected to identify these gaps between their thought and action. Consequently, they should attempt to mitigate this gap to improve quality of instruction. In order to undertake this task, teachers need to play the role of a researcher. Teacher preparation programs should equip teachers with necessary skills of conducting classroom research. This helps teachers in improving their classroom practices. Teacher educators working in District Institutes of Education and Training (DIET) have to play an important role in equipping the teachers with the skills of conducting classroom research. Hence there is a need to improve the capabilities of DIET faculty to train primary teachers in conducting classroom research.

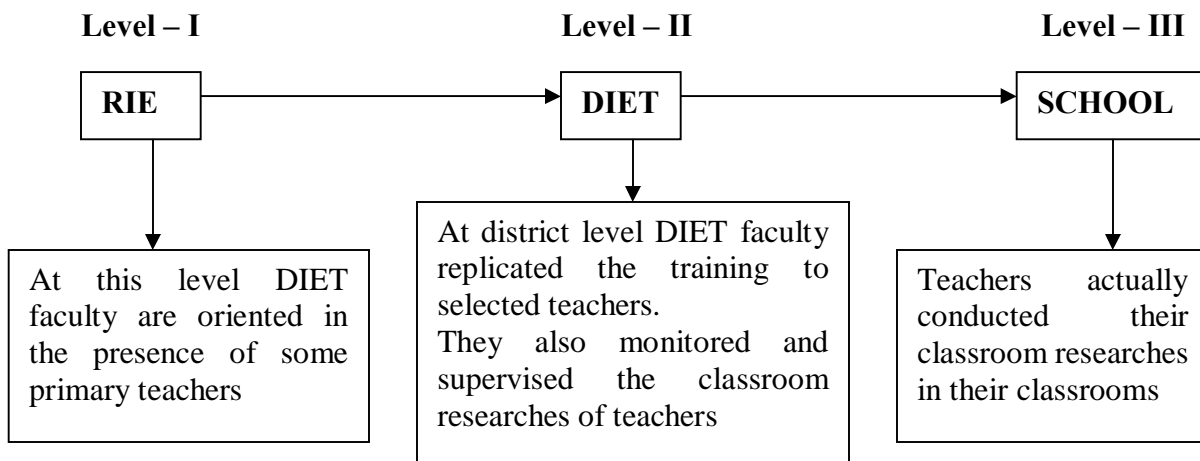
Objectives:

1. To prepare educational functionaries for helping teachers in conducting classroom research.
2. To develop teachers as researchers.

This project is organized in three levels and in three phases. It is a replicable training program, where Regional Institute of Education, Bhopal at regional level introduced a training model and is replicated at District Institutes of Education and Training (DIET) at district level ultimately reaching to schools when teachers conduct classroom research in their classrooms.

Level – I: In the first level DIET faculty were oriented at RIE, Bhopal. All the necessary inputs required to train primary teachers in conducting classroom research were provided in three training programs. These training programs were conducted at different stages of classroom research, viz., selection of problem and preparation of classroom research proposal; preparation of design and tools; and data analysis and report writing. At every stage of classroom research, the outcomes of the work carried out were brought to the RIE, Bhopal. After thorough discussion the classroom problems, proposals, experimental design, tools, data analysis and reporting were finalized at RIE level

Level – II: In the second level, DIET faculty had helped selected primary teachers in conducting action research. At this level DIET faculty had trained selected teachers and helped them in locating the problem, preparation of classroom research proposals, preparation of tools, conducting the experiment, collecting the evidences, data analysis and report writing. At this level DIET faculty besides conducting training programs to selected primary teachers had also provided support to them while conducting classroom research through continuous monitoring and supervision.



Level – III: All the selected teachers conducted classroom research in their classrooms. After first training program on identification of problem and preparation of classroom research proposal, teachers went back to their schools and located their classroom problems and prepared their classroom research proposals. After the training program on preparation of design and tools, teachers had prepared their experimental design and tools. DIET faculty helped them in preparing design and tools. Teachers then conducted

ed the data/evidences. Then after the third training report writing, teachers analyzed their data/evidences. DIET faculty assisted teachers in analyzing their data and report writing.

This project was carried out in three phases as per the stages of classroom research. In these three phases the activities/tasks pertaining to concern, planning and execution of classroom research were carried out.

Phase - I: In this phase all the inputs required for selection of the classroom problem, designing the experiment and preparation of action plan were provided to the participants. A three-day workshop was organized for this purpose.

Phase – II: In this phase all the inputs required for planning and execution of classroom research were included. A five-day workshop was organized for this purpose.

Phase – III: In this phase the participants were acquainted with data analysis, report writing and preparation of abridged version of their classroom research experiences. A five-day workshop was organized to complete their reports.

Awareness and Competencies Development: The purpose of this project is to develop teachers as researchers. In order to accomplish this objective, it is necessary to develop awareness about action research and to develop competencies required for conducting classroom research.

Awareness: In this project attempt is made to develop awareness on the following aspects that are essential for transforming teachers as researchers. Teacher preparation program for Madhya Pradesh state was conducted first. In this program main focus is on development of awareness. Attempt is made in this program to facilitate primary teachers to conduct classroom research by providing academic support at various stages of conducting classroom research. This has helped the teachers to obtain experience in conducting their classroom researches. Consequent to the emphasis given in Sarva Shiksha Abhiyan (an Indian endeavor to achieve universalisation of elementary education, popularly denoted as SSA) for conducting classroom research, the functionaries of SSA were trained to help primary teachers in conducting their classroom researches. Training of SSA functionaries was conducted to Chhattishgarh state. In this program all the aspects of classroom research were presented to SSA functionaries in order to develop awareness.

Competencies: On the basis of teacher preparation experiences in Madhya Pradesh it is felt that mere awareness may not transform primary teachers into classroom researchers. Of course in this state also primary teachers have completed their classroom researches successfully. It is felt that besides awareness if specific competencies are developed, primary teachers could fully be transformed into researchers. Subsequently, a teacher preparation endeavor was initiated in the state of Goa. In this program attempt is made to develop competencies required for conducting classroom research.

in three states of India, viz., Madhya Pradesh, Goa and Chhattishgarh as teacher educators and teachers of these three states. The details of the total sample are provided in following table.

Table 6 1: State and group wise samples (N=60)

State	f	%	Group	f	%
Madhya Pradesh	20	33.3	Teacher Educators	24	40.0
Goa	15	25.0	Teachers	20	33.3
Chhattishgarh	25	41.7	SSA functionaries	16	26.7

All the three states selected for the study are located at western region of India. The total sample is 60 that include teacher educators (40%), primary teachers (33.3%) and Sarva Shiksha Abhiyan (SSA) functionaries (26.7%). As the purpose of this project is to train the teacher educators and SSA functionaries in transforming primary teachers as researchers, they constitute the majority in the sample (66.7%). In order to provide them the modalities of preparing teachers as researchers, series of workshops were organized focusing on primary teachers (33.3%).

Tools: There are three tools administered to the participants during the course of teacher preparation. They are 6 awareness scale and competency scale. Both these tools were prepared by the investigators in order to estimate the awareness and competency levels of the participants.

Awareness Scale: This is a five-point scale consisting of all the aspects of classroom research. This scale is to obtain the awareness of participants on - theoretical perspectives, concern, planning and execution of action research. The participants are asked to respond on a five-point response continuum 6 great extent (GE), moderate extent (ME), some extent (SE), least extent (LE) and not at all (NA). A score of 5,4,3,2 and 1 was assigned respectively to these responses. This scale is administered to all the participants of three states at entry point and at the exit point.

Competency Scale: This scale is intended to measure the competency of participants in conducting classroom research. Competencies required to perform all the different functions of classroom research were identified and participants are asked to rate their competency levels on a five-point scale. The five-point response continuum is - great extent (GE), moderate extent (ME), some extent (SE), least extent (LE) and not at all (NA). A score of 5,4,3,2 and 1 was assigned respectively to these responses. This scale is administered to the participants from Goa at exit point.

Results and Discussion:

This project is carried out to develop awareness and competencies among primary teachers to conduct classroom research in an attempt to transform them into classroom researchers. The results are presented in two parts. In the first part the results pertaining to the awareness levels are presented. The second part deals with the results pertaining to development of competencies in conducting classroom research.

conducted in three states. All the three states, separate training programs were conducted. In these programs attempt is made to develop awareness levels of teacher educators and primary teachers. The awareness scale was administered in the beginning and after the end of the program to know their entry and exit levels of awareness in different aspects of classroom research. The results pertaining to awareness of participants are presented hereunder.

Table 6 2: Comparison of entry and exit awareness on classroom research

Awareness	AM	SD	N	Df	t
Entry	30.05	8.06	60	59	33.5*
Exit	56.57	8.04			

*Significant at 0.01 level

A significant difference between entry and exit awareness is evident in respect of classroom research. The mean difference is high. The mean value of entry awareness (30.05) is greater than that of exit awareness (56.57). This means that the awareness level of the participants on classroom research has improved substantially. The teacher preparation intervention is successful in transforming teachers as researchers.

Table 6 3: comparison of means of entry and exit awareness on different aspects of classroom research (df = 59)

S.No.	Aspects	Means		Mean Difference	t
		Entry	Exit		
1.	Theory	9.22	20.55	11.33	27.78*
2.	Concern	3.95	13.13	9.18	34.35*
3.	Planning	7.75	24.67	16.92	37.34*
4.	Execution	9.13	24.32	15.19	33.32*

* Significant at 0.01 level

A significant difference between entry and exit awareness in all the aspects of classroom research is evident. The mean values of exit awareness are greater than that of the entry awareness. This indicates that the awareness of participants on theoretical perspectives, locating concerns, planning and execution of classroom research has improved due the teacher preparation program. The minimum possible score is 5, 3, 6 and 6 respectively for theory, concern, planning and execution. Entry mean for concern (3.95) is just above minimum possible score, indicating that participants awareness on concern is at minimal level. However, entry means for theory, planning and execution are little higher than minimum possible score. This means that the participants awareness is little higher in these aspects. The concept of concern is relatively new to them. Their awareness about concern increased a lot after the training program. This is evident in the exit mean (13.13), which is almost near the maximum possible score (15). In respect of planning and execution also there is lot of improvement as the exit means are almost reaching the maximum possible score (30). Similarly the exit mean of theory (20.55) is nearing the maximum possible score (25).

on different aspects of awareness about theoretical

S.No.	Aspects	Entry					Exit				
		NA	LE	SE	ME	GE	NA	LE	SE	ME	GE
1.	Classroom Research	42	16	2	-	-	-	-	7	25	28
2.	Experimental Research	31	20	9	-	-	-	2	11	23	24
3.	Experimental Designs	26	24	8	2	-	1	2	13	26	18
4.	Tasks Ahead	60	-	-	-	-	-	1	12	30	17
5.	Nature of Variables	26	28	6	-	-	-	2	11	30	17

There are more number of participants not at all aware of the all the specific aspects of the theoretical perspectives before the training program. A large majority is aware of these aspects after the training program. All the participants are not at all aware of the tasks ahead in the beginning but could get acquainted with their tasks during the course of training. Some participants expressed that they are not aware of experimental designs even after the training. Of course, the knowledge of sophisticated experimental designs is not essential for conducting classroom research. Even after training program, few participants opined that they are least aware of experimental research, experimental designs, tasks ahead and nature of variables.

Table 6 5: Frequencies of responses on different aspects of awareness about concern (N=60)

S.No.	Aspects	Entry					Exit				
		NA	LE	SE	ME	GE	NA	LE	SE	ME	GE
1.	Defining Concerns	58	1	1	-	-	-	-	3	28	29
2.	Change in Action	56	3	1	-	-	-	-	12	16	32
3.	Hypotheses	24	26	7	3	-	-	1	6	23	30

The entry awareness of participants is very low in respect of defining concerns and change in action. However, there are few participants who are aware of hypotheses at entry point. This is due to the reason that teacher educators are aware of hypotheses, as they are post-graduates in education. During their post-graduation they might have been acquainted with this concept. But the definition of concerns and change in action are quite new concepts for majority of participants. There is substantial improvement in their awareness levels in all the three aspects as majority expressed that their understanding is increased to a great extent after the training program.

Table 6 6: Frequencies of responses on different aspects of awareness about planning (N=60)

S.No.	Aspects	Entry					Exit				
		NA	LE	SE	ME	GE	NA	LE	SE	ME	GE
1.	Designing Experiment	40	17	3	-	-	-	2	18	27	13
2.	Preparation of Action Plan	47	13	-	-	-	-	1	1	31	27
3.	Proposal Format	35	24	1	-	-	4	3	4	21	28
4.	Preparation of Proposal	32	26	2	-	-	1	1	2	29	27
5.	Activity Dairy	59	1	-	-	-	-	1	6	23	30

With regard to different aspects of planning classroom research, majority of participants are not at all aware of coding and activity dairy at entry point. Further most

designing experiment and preparation of action plan. Entry-level awareness is little better in respect of proposal format and preparation of proposal. Due to the reason that there is lot of emphasis on action research, teachers could know little about proposal format and preparation of proposals. On observing the exit level awareness, it is found that most of the participants are aware of activity dairy, preparation of action plan, proposal format and preparation of proposal to a great extent. However, they are not fully aware of coding and designing the experiment.

Table 6 7: Frequencies of responses on different aspects of execution (N=60)

S.No.	Aspects	Entry					Exit				
		NA	LE	SE	ME	GE	NA	LE	SE	ME	GE
1.	Treatment of Variables	42	16	2	-	-	-	2	17	23	18
2.	Collection of Evidences	36	19	5	-	-	-	1	9	21	29
3.	Recording Evidences	42	15	3	-	-	-	1	7	31	21
4.	Data Treatment	32	25	3	-	-	-	1	8	31	17
5.	Data Entry	22	30	8	-	-	-	3	9	31	17
6.	Preparation of Spread Sheet	26	27	7	-	-	7	2	8	30	13

From the above table it is evident that there is a marked improvement in the awareness levels of participants in almost all the aspects of executing classroom research. Even after training some participants are not at all aware of preparation of spread sheet. At the end of the training program majority of participants have improved their awareness levels to either moderate or great extent in all the aspects of executing the classroom research.

Competencies: In order to develop competencies in conducting action research, a separate training program was organized for teachers and teacher educators of Goa state. Besides awareness scale at entry and exit points, competency scale was also administered to the participants at the end of the program. The results pertaining to the competencies in conducting action research are presented hereunder.

Table 6 8: Exit status of competencies pertaining to concern (N = 15)

S.No.	Competencies	Responses				
		GE	ME	SE	LE	NA
1.	Critical Observation of classroom practices	7	8	-	-	-
2.	Self-Reflection	8	5	2	-	-
3.	Identification of gap between thought and action	4	11	-	-	-
4.	Analysis of probable causes for the gap	11	4	-	-	-
5.	Locating the inadequacies of present practice	10	4	1	-	-
6.	Locating the target group	13	2	-	-	-
7.	Describing the concern	8	7	-	-	-

All the competencies pertaining to concern have been developed either at great extent or moderate extent. Few participants could develop the competencies of self-reflection (2) and locating inadequacies of the present practice (1) to some extent. Out of seven competencies pertaining to concern, competency of locating target group seem to

ent among majority of participants (13) followed by the gap (11) and locating inadequacies of the present practices (10). Competency of identification of gap between thought and action is not adequately developed.

Table 6 9: Exit status of competencies pertaining to planning (N = 15)

S.No.	Competencies	Responses				
		GE	ME	SE	LE	NA
1.	Deciding the new practice (change in action)	10	5	-	-	-
2.	Arriving at assumptions (action hypothesizing)	9	4	2	-	-
3.	Identification of variables	9	5	1	-	-
4.	Treatment of variables	7	7	1	-	-
5.	Designing the experiment	10	5	-	-	-
6.	Identification of tools to collect evidences	9	6	-	-	-
7.	Preparation of action plan	8	5	2	-	-

On the whole participants have acquired the required competencies to plan their action researches. This evident as there were no participants responded to -not at all and -least extent options in the five-point scale. Majority of participants viewed that they have attained the competencies of deciding the new practices (10) and designing the experiment to a great extent. There are few participants who felt that they could acquire the competencies pertaining to arriving at assumptions (2), identification of variables (1), treatment of variables (1) and preparation of action plan (2) to some extent. Out of seven competencies pertaining to planning, treatment of variables is not adequately attained.

Table 6 10: Exit status of competencies pertaining to execution (N = 15)

S.No.	Competencies	Responses				
		GE	ME	SE	LE	NA
1.	Preparation of tools	8	7	-	-	-
2.	Recording the evidences	10	3	2	-	-
3.	Scheduling the recording procedures	8	4	3	-	-
4.	Data entry (computer operation)	6	6	2	1	-
5.	Treatment of data/evidences	10	4	1	-	-
6.	Reporting the experiences	9	4	2	-	-

Majority of participants opined that they have acquired the competencies of recording the evidences (10) and treatment of data/evidences (10) to a great extent. On the whole there is substantial development in competencies of executing the action research. However, one participant expressed that he/she could attain the competency of data entry to the least extent. This may be due to the reason that the participant is not fully acquainted with computer operations. It is observed that some participants could attain the competencies of recording the evidences (2), scheduling the recording procedures (3), data entry (2), treatment of data/evidences (1) and reporting the experiences to some extent. Most of the participants are confident in reporting the experiences as they have all completed their report during the final workshop.

On the basis of the data available it may be concluded that teacher preparation endeavor has initiated the process of converting teachers as researchers. All the teachers who have attended the training programs organized at RIE, Bhopal have completed their action researches successfully and come out with a report of their experiences. During the course of conducting their action researches, they were monitored and supervised at regular intervals at district level by DIET faculty and during the workshops conducted at RIE, Bhopal. As these teachers are directly under the supervision of RIE faculty, they could gain the confidence in conducting their action researches. They were highly motivated and follow up feedback reveals that they are continuing the process of conducting action researches to improve their classroom practices. If they carry on the efforts of conducting such classroom related inquiries in their immediate contexts, they would surely transform into a classroom researchers. In case of those teachers who have conducted the action researches under the guidance of DIET faculty, there is a hope that DIETs would be able to discharge the responsibility of transforming the teachers into researchers as all of them also completed their classroom researches within stipulated time frame.

With regard to the awareness of participants on different aspects of action research, it is encouraging that they are aware of theoretical perspectives like classroom research, scientific method and experimental research. Under concern, participants have fully aware of the sources of classroom problems and defining the concerns. As regards planning, most of the participants are aware of change in action (new practice), designing the experiment and preparation of action plans. All the participants have prepared the action research proposals. They are all successful in executing the action research and during the course of conducting action research they are aware of collection of evidences and treatment of evidences. Some participants are not fully aware of nature of variables and treatment of variables. There are some problems in increasing the awareness about experimental designs, data entry, coding and preparation of spread sheets. Though they are not aware of tasks ahead and activity diary in the beginning, all the participants gained knowledge about them while conducting their action researches.

As regards the competencies in conducting action research, the participants are strong in analyzing the probable causes of gap between thought and action though they faced some difficulties in identifying this gap. Actually they have not adequately acquired the competency of identifying the gap between thought and action but once it is identified they are competent to analyze the probable causes. They have acquired the competencies of critical observation of classroom practices, locating the inadequacies of present practice, locating the target group and describing their concerns. There are some problems in attaining the competencies of self-reflection and identification of gap between thought and action. In respect of competencies pertaining to planning, they are strong in deciding the new practice and designing the experiment. Though there are weaknesses in awareness about experimental designs, they are able to develop the competency of designing their experiment. This is because of the reason that they are not insisted to go for complicated designs of experiment. As the choice of experimentation is restricted to a single group designs, they are able to develop the competency of designing

There are some difficulties in mastering the competencies of identification of variables, treatment of variables and preparation of action plan. With regard to the competencies pertaining to execution of action research, they are found to be strong in preparation of tools, recording the evidences and reporting the action research experiences.

Finally, the teacher preparation endeavor is successful to some extent in transforming the teachers as classroom researchers as majority of participants have gained awareness in most important aspects of action research and acquired required competencies in conducting their classroom researches. But the question is whether they sustain this awareness and competencies in future to fully transform into classroom researchers independently. A follow up study is under way and if the participants are continuing their critical inquiries into the lapses of their practices and attempt to improve their own classroom practices then we can affirmatively say that this teacher preparation paradigm would transform teachers as researchers.

Suggested Readings:

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