Chapter Three

Procedure

"We have to remember that what we observe is not nature in itself but nature exposed to our method questioning."

— Werher Heisenberg

(as cited in Moncur, 1995-2005)

3.01 : Introduction

This chapter deals with the process of selection of research methods, selection of tools for data collection, development of the questionnaire, its finalisation process, classification of data and method of data collection.

3.02 : Selection of method

The statement of the problem was –

"A survey of status of student teachers of University of Pune regarding their creativity in teaching with a view to improving the same through a training programme and testing its effectiveness with special reference to College of Education, Sangamner from Ahmednagar district."

As mentioned in the statement, the researcher was interested in getting acquainted with the status of creativity in teaching of student teachers'. So it was essential to get the present day representative picture of student teachers' creativity in teaching of B. Ed. colleges affiliated to University of Pune. For that a survey method was found proper.

The statement itself also indicates that 'to improve/develop creativity in teaching through a training programme' is a core part of the research. It
meant, studying the change in the existing performance of CIT due to some new programme was essential. Hence the experimental method had become a mandatory part of this study. Thus this study was based on survey and experimental method. This chapter deals mainly with a procedure of survey in detail. The discussion about the experiment is given in Chapter Five.

The actual survey included following decisions and followed by necessary actions –

1. Preparation of tools
2. Try out and finalisation of tools.
3. Marking scheme
4. Time of survey
5. Selection of sample
6. Administration of the Test of Creativity in Teaching (TCIT)
7. Analysis and interpretation of data and data collection

3.03 : Tool Preparation

Initially a search for standardized test of creativity in teaching was undertaken. But the researcher could not find any such test. From a teacher educator, working in a college of Education in Pune, the researcher received a verbal form of Torrance test of creative thinking (Marathi version). (Appendix C). Torrance's test measures only four factors as pointed out in Chapter Two. They are fluency, flexibility, originality and elaboration. Also it is generic.

In an operational definition of creativity in teaching, it was mentioned that, "There is a presence of creativity in teaching; when a teacher makes use of his competencies such as openness, sensitivity to the problem, fluency, flexibility, originality, elaboration, redefinition and resourcefulness,
while discharging his duties as a facilitator of learning process. So the researcher decided to construct a paper pencil test which would measure all the competencies mentioned in the operational definition of creativity in teaching.

The researcher was interested in measuring emotional intelligence of experimental and control groups. Hence a web search of the test measuring emotional intelligence was undertaken. The researcher got a test of EQ prepared by Goleman and others. It was downloaded and translated into Marathi. Both are given in Appendix D.

3.04 : Development of Test of Creativity in Teaching (TCIT)

The steps included in development of TCIT are as depicted in the flow chart:

FLOW CHART 3 : Development of Test of Creativity in Teaching (TCIT)
3.05 : Process of tool preparation and Pre-pilot

Initially, it was decided that before measuring creativity in teaching of student teachers, a measurement of creativity in teaching in case of secondary school teachers (in service teachers) may become helpful as a benchmarking. The idea of where the secondary school teachers are on a scale of creativity in teaching would become useful to construct the test items properly for B. Ed. student teachers.

Two decisions were taken before the constructions of test items:
1. The context should be 'teaching-learning process'.
2. The questions should be of open ended type. Hence no fixed time to answer. Time should be as per requirement.

The test was divided into four parts. First three parts were common to all whereas the last part was subject specific. As usual, the first part consisted of questions seeking general information. The second part was related to professional development. Through the third part, i.e. through 18 questions (rather stimulee) eight factors of creativity in teaching were measured. In addition to this there was the fourth part measuring the same factors in the context of their teaching subjects. (Appendix E)

The reason behind was, though creativity is subject neutral, it should be measured in two parts. Part three would test all the factors of creativity in teaching in general and the fourth part would test all the factors of TCIT but in the context of a particular teaching subject. So there would be a counter checking also.
This test was shown for consultation to some experienced high school teachers, teacher educators, school head masters, who themselves were innovative (List of experts - Appendix F). According to their suggestions, some questions were modified. Initially it was decided that this should be treated as pilot testing. But after the feedback it was decided as a pre-pilot. The modified test was given to 37 high school teachers from Sangamner. Head master of each school gave the researcher the names of teachers whom they considered as creative.

3.06 : Feedback from Pre-pilot

When the responses were read and analysed, the researcher learnt the followings things:

1. The researcher realised that every question measures more than one factor of creativity in teaching. Fluency, flexibility (and hence originality) were the factors that were measured by almost every question. This caused difficulties in assessing.

2. Every teacher took at least five days to write it fully because it consisted of 30-35 questions included in two parts besides general and professional information. It was thought that it might become lengthy for B. Ed. students to ask them to fill the questionnaire in two or three hours.

3. The basic assumption was creativity is subject neutral. Hence process aspects of it should be focused. The process of creative thinking plays key role in teaching creatively. If this was so, separate questions on each subject were of no worth.
4. The most important thing the researcher realised is the need of resolving each factor into its dimensions and also to find out the acute differences in them.

3.07 : Actions taken according to feedback of Pre-pilot

Initially the researcher tried to establish the interrelationship between factors of creativity in teaching (Figure 11). It is given in Chapter Two on Page No. 76.

These factors are then resolved into number of dimensions to get clarity of each factor. It is given in Chapter II/Section I. (Page No. PP.72-75)

Then referring to the above mentioned dimensions, the test measuring 'creativity in teaching' was prepared. It was made up of two parts. All the questions were kept open ended.

3.08 : The final version of Test of Creativity in Teaching (TCIT)

This test was made up of 3 parts. This final version of TCIT is given in Appendix G with its English translation.

Part I : General profile of students.

Part II : Information related to their exposure.

Part III : Items of creativity in teaching.

Part I i.e. general profile consists of name, age, sex, educational qualifications, computer literacy, teaching experience, upbringing and education of parents.
Part II - creativity being a function of exposure to various experiences, questions seeking the information, related to hobbies, participation in various social activities etc. were included.

Part III - There are in all 22 questions based on various factors of creativity in teaching as mentioned in operational definition.

Questions of Part III were framed to measure a particular dimension of creativity in the context of teaching.

While framing the questions, emphasis was given on 'process' aspect since the researcher needed to measure 'divergent thinking', all the questions were kept open-ended.

3.09 : Pilot Testing

This test was given to 29 D. Ed. (Sr.) students. It took 2 and ½ hours to write all the answers. No time limit was set before the students. The test was given on 5th July 2004. It was observed that students liked to answer such kind of questions. Most of them responded in detail.

Most of them were found open minded and keen to answer. On the next day i.e. on 6th July 2004, the researcher gave them 'Torrance Test of Creative Thinking' (TTCT) verbal form. Students responded well to these questions also.

3.10 : Reliability and validity of data :

TCIT was developed with great care and by following the procedure of development of an effective tool. It was checked by experts. It was finalised
by two tryouts and after discussion with experts. This ensured the content validity of the data. Validity was established by computing the correlation between the total creativity scores obtained by D.Ed. student teachers on TTCT and the creativity test constructed by the investigator. It was found to be, $r = 0.51$.

Reliability of a test as calculated by split half method is $r = 0.81$.

Same set of instruction was consistently given. There was no difficulty for student teachers in answering TCIT. As expected, some respondents raised doubt about 'Teacher resource center'. As discussed with experts, the Marathi word for it was given to student teachers. There was a question No.2.10 related to social activities. It was thought that it was not based on the experiences of school and college days directly. Hence this question was excluded from scoring.

Thus the random sampling method, care taken while administering TCIT, helped the researcher to obtain a valid and reliable data for further analysis. The researcher had decided to approach the colleges of education affiliated to University of Pune which were existing in June 2004 i.e. at the start of academic year 2004. In academic year 2004-05, up to October 2004, some 5-6 new colleges have opened. So the researcher approached to the colleges and all the colleges responded positively.

However, the researcher tried to collect data from two newly opened colleges of Education also. The researcher surveyed in all fifteen B. Ed. colleges. Sample selected was a random sample consisting of 25% of the population.
3.11 : Time of Survey

Survey was conducted in the Colleges of Education affiliated to University of Pune. It was decided that survey should be conducted in the first half of academic year so that during the second half experiment could be conducted. But in academic year 2004-05, the admission process was delayed and it finished in the last week of August (and first week of September in some colleges). Hence, actual survey was conducted from 23\textsuperscript{rd} Aug. 2004 to 30\textsuperscript{th} Oct. 2004 and again in Dec. 2004. The details are enlisted in Appendix H.

\textbf{Selection of Sample} : The population consisted of students doing B. Ed. course in colleges of Education, affiliated to University of Pune through Marathi medium in year 2004-05. The researcher decided to get a random sample of 25\% of student teachers from every college of education.

3.12 : Administration of questionnaire

All the colleges of Education affiliated to University of Pune were contacted. Principals of the colleges were requested to co-operate with the work. Prior permission for the administration of the questionnaire was obtained and dates were fixed.

As mentioned in 3.11, the major part of the survey was carried out during 23\textsuperscript{rd} Aug. 2004 to 30\textsuperscript{th} Oct. 2004 and rest of the work was carried out in Dec. 2004.

Test of CIT was given in a single session. It was not a time test. So students were informed to take as much time as they wanted. It was
observed that normally students used 90 to 150 minutes to respond to the test. In the design, one more control group from B. Ed. College, Shrirampur was decided. So in addition to TCIT, test of emotional intelligence and of Torrance were administered at Shrirampur and Sangamner also.

3.13 : Experiences in data collection

When the researcher visited various B. Ed. colleges for data collection, almost all colleges co-operated well. Student teachers in each and every college responded well. Tendency of skipping the last questions or copying of answers or not attempting seriously was found very rarely.

Four experienced student teachers found this test very 'essential' for 'would be teachers'. The student teachers were found eager to know about the scoring and further action after the survey. One student teacher from a college was not selected in a random sample. But he was interested in attempting a test. He was allowed to respond. But it was not included in the data of 429. One student teacher gave her residential address and asked the researcher to inform her score after the checking of answers. The researcher found that twelve student teachers from the sample who were not known the meaning of a phrase ‘पारावार न उखो’. The shocking fact was that out of these twelve student teachers seven were from Marathi method. Some student teachers liked the last passage of Neils Bohr and they asked it for personal collection. All this reflects student teacher’s positive attitude. But it was not reflected in administration aspect of colleges. Before the visit to college, the dates and timings were fixed. But in case of more than 50%
colleges of education, the researcher found that because of either communication gap or weak planning there was a delay of one or two hours to start the test. Once it started, everywhere ample time was provided.

It was also found that from these 15 colleges hardly one or two staff members had shown curiosity about the test, about the research study.

The researcher got a chance to visit about 75% B. Ed. colleges of University of Pune, either grantable or of no grant basis; either having a long tradition or newly opened. The researcher observed library, time table, lesson notes of demonstration lessons displayed on the notice boards. She got a chance to witness the interaction of teacher educators with students, interaction among teacher educators in a staff room also.

More or less, the conservative, authoritarian atmosphere was found everywhere supporting the present status of teacher education as mentioned in Chapter One.

Summary:

In this chapter, the researcher has described the procedure of the survey and development of tools of the survey. It has presented the details of the survey, development of the tools and their validation. It described the pilot testing of the tools for the survey and the process of implementation of the survey. Qualitative and quantitative analysis of data collected during the survey is given in Chapter IV.

"Not everything that can be counted counts; and not everything that counts can be counted."

– Einstein (as cited in Taylor, 2006)
References:

Book:


Websites:

