RESEARCH FRONT

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INTERACTIVE TEACHING STRATEGIES FOR UPGRADATION OF TEACHER-TRAINEES

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Abstract

Teacher education reaches out to the teacher trainees by providing them the relevant knowledge, attitude and skills to function effectively in their teaching profession. It serves to equip them with the conceptual and theoretical framework within which they can understand the intricacies of the profession. It aims at creating the necessary attitude in teacher trainees towards the stakeholders of the profession, so that they approach the challenges in teaching with a very positive manner.

One of the important challenges in front of the teacher trainees is to impart the knowledge of the Subject with the help of different Innovative Strategies of teaching.

The paper contributes to a pedagogical approach that could be followed by the teacher trainees for improving the teaching process. It focuses on studying the effectiveness of Teaching programme using Interactive teaching strategies for Achievement in 'Science and Technology' subject.

In this research, 33 second year D.T.Ed. Teacher trainees were structured as a sample. The teacher-made achievement test was applied to the sample. The significant difference etween the mean value of pre-test and mean value of post-test was found in favor of the teaching programme prepared by using 'Interactive

Key words : Interactive teaching strategies, Upgradation, Teacher trainees

Introduction

The National Council for Teacher Education has defined teacher education as – A programme of education, research and training of persons to teach from pre-primary to higher education level. Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein.

According to C. V. Good's Dictionary of Education, Teacher education means, —all the formal and non-formal activities and experiences that help to qualify a person to assume responsibilities of a member of the educational profession or to discharge his responsibilities more effectively.

In 1906-1956, the program of teacher preparation was called teacher training. It prepared teachers as mechanics or technicians. Teacher education encompasses teaching skills, sound pedagogical theory and professional skills.

Interactive teaching method is a new trend in Education which can be practically used in the classroom for improving the achievement of teacher trainees in 'Science and Technology' subject. Interactive teaching implies active involvement and participation by the trainees so that they are no

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longer passive learners in the teaching learning process. Hence the researchers has decided to study the effectiveness of Interactive Teaching strategies for upgradation of teacher trainees in 'Science and Technology' subject.

Statement of problem

To develop Interactive teaching methods for upgradation of teacher trainees in 'Science and Technology' subject and to study its effectiveness.

Background of the research

Progressive educators like John Dewey, M. Montessori, M. Gandhi, Jean Piaget and L.S. Vygotsky gave stress on the methods which were activity based and productive methods rather than using traditional method for teaching. The Interactive teaching strategies like Role play, group discussions, field visits are used in developing the interest of the teacher-trainees in studying the Science and Technology subject.

Need and importance of the study

Teaching and learning process of 'Science and Technology' subject will become difficult, monotonous as well as boring if only traditional method is used for teaching. Use of different interactive teaching strategies may develop interest in studying Science subject. This will also enhance the creativity and practical skills of the teachers.

Being a Science Teachers the researchers have observed that the teacher trainees take more interest in the teaching learning process if taught by using Interactive teaching strategies. For making the Teaching-learning process interesting, lively, easy and perfect, the researcher has decided to study the effectiveness of Interactive teaching strategies in the achievement of 'Science and Technology' subject.

Definitions of the important terms

1. **Interactive teaching strategies**
   Interactive teaching strategies like Group Discussions, role play, Question-answers etc. It is a process of having interactions in the class room for upgradation of teacher trainees.
2. **Teacher-trainees**
   The student teachers studying in second year of Diploma in Teacher Education Course and are undergoing training to become primary school teachers.
3. **Upgradation**
   It means the significant increase in the scores obtained by the D.T.Ed. Teacher trainees in the Pre-test and Post-test after implementation of a teaching program using Interactive teaching Strategies

Objectives of the study

1. To find the difficulties faced by the teacher trainees in learning 'Science and Technology' subject.
2. To develop and implement a teaching program prepared by using Interactive teaching strategies.
3. To study the effectiveness of a teaching program prepared by using Interactive teaching strategies

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Scope, limitations and delimitations

Scope

This study is applicable to all teacher trainees studying in second year English Medium D.T. Ed. Colleges in Pune city.

Limitations

1. The effectiveness of Interactive teaching strategies is based on total involvement of the students.
2. The researcher has no control on the psychological factors of the students
   E.g. attention, grasping power, interest.

Delimitations

1. The sample for the study is drawn from second year D.T.Ed.teacher trainees.
2. The study is limited to the 5 selected topics of Science and Technology.

Assumptions

1. Teacher Educators prefer traditional method of teaching Science and Technology.
2. Teacher trainees are bored with the traditional method used by teacher educators for teaching Science and Technology.

Variables

Independent Variable of the experiment was the treatment given i.e. a teaching program prepared by the researcher using Interactive teaching strategies based on the selected units of 'Science& Technology' subject.

Dependent Variable of the experiment was the Science achievement scores.

Control Variables are –Subject: Science& Technology, teacher-trainees of D.T.Ed. College.

Intervening variables- interest of the students, attention, grasping power.

Hypothesis

Research Hypothesis-H_1

1. Teaching program using Interactive teaching strategies increases academic achievement.

Null Hypothesis (for testing purpose)-H_{01}

1. There is no significant difference between mean scores of pre-test and post-test in the 'Science and Technology' subject achievement of teacher-trainees when teaching program using Interactive teaching strategies was implemented.

Methodology

For the above research study, the Experimental method of research was adopted.

Population

The population for the present research consists of all second year teacher trainees Studying in the English medium D.T.Ed Colleges of Pune City.

Sampling

For the present study, the researcher has selected the Incidental Sampling Method. It was based on Non-Probability method of Sampling.

Sample

The sample comprised of 33 students of second year D.T.Ed. Course, studying in

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Smt. Kashibai Navale Institute of education (English Medium), Tilekar Nagar, Kondhwa (Bk.), Pune. in the academic year 2012-2013.

Design

The study adopted Pre-experimental design of Single group pre-test post-test design.

O 1	X	O 2
Pre-test	Treatment	Post-test

Procedure

The procedure of the present study was as follows:

Administration of Pre-test

In the present study, the researchers aimed to examine the effectiveness of Interactive teaching strategies on the 'Science and Technology' subject achievement of teacher-trainees. The researchers has developed the achievement tests i.e. pre-test and post-test. The teacher made Pre-test was administered. The total marks were 40 and the Duration of the test was 1 and half hour.

Teaching programme using Interactive teaching strategies

The different learning experiences were provided to the teacher trainees. The Teaching strategies were selected on the basis of the guidance of 5 Subject experts teaching in different D.T.Ed. English medium Colleges of Pune city. In this regard the researcher developed the tests on the following 5 units from the text book of Science and technology subject. The text-book is based on the New Revised Syllabus (2004) of Maharashtra
State Council for Educational Research and Training and was published by Nirali Prakashan, Pune.
The list of the units selected form the text book of Science and Technology and the list of selected Interactive teaching strategies is given in the table 1.

Table 1
List of units selected from the text book of Science and Technology and Selected Interactive strategies

Sr. No.	Name of the Unit/topic	Interactive Strategies used
1	The teacher teaching 'Science and Technology'	Question-answers
2	Laboratory for Science And Technology	Field visit- Visit to laboratory
3	Syllabus and textbooks	Role play
4	Teaching methods of 'Science and Technology'	Group-discussion
5	Educational Aids for 'Science and Technology'	Power point presentation

Administration of Post-test

The teacher made Post-test was administered. The total marks were 40 and the duration of the test was one and half hour.

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TOOLS FOR DATA COLLECTION

1. Achievement tests prepared by the researcher

1. The researchers developed an achievement test based on the 5 units from the text book of Science and Technology subject.
2. The text-book is based on the New Revised Syllabus (2004) of Maharashtra State Council for Educational Research and Training and was published by Nirali Prakashan, Pune.
3. The test was of total 40 marks.
4. The time allotted for the test was 1 and half hour.

2. **Statistical tools:** 'Mean' and't'-test.

ANALYSIS OF DATA

Analysis of data was done by using mean and t-test. The details are given in table 2.

Table 2
A summary table of obtained t-value for the class

Achievement Test	N	M	SD	SE_M	γ	SE_D	t-value (Cal.)	Table t-value (0.01)
Pre-test	33	11.30	12.53	2.183	0.9923	1.6821	7.764	2.423
Post-test	33	24.36	25.48	4.439				

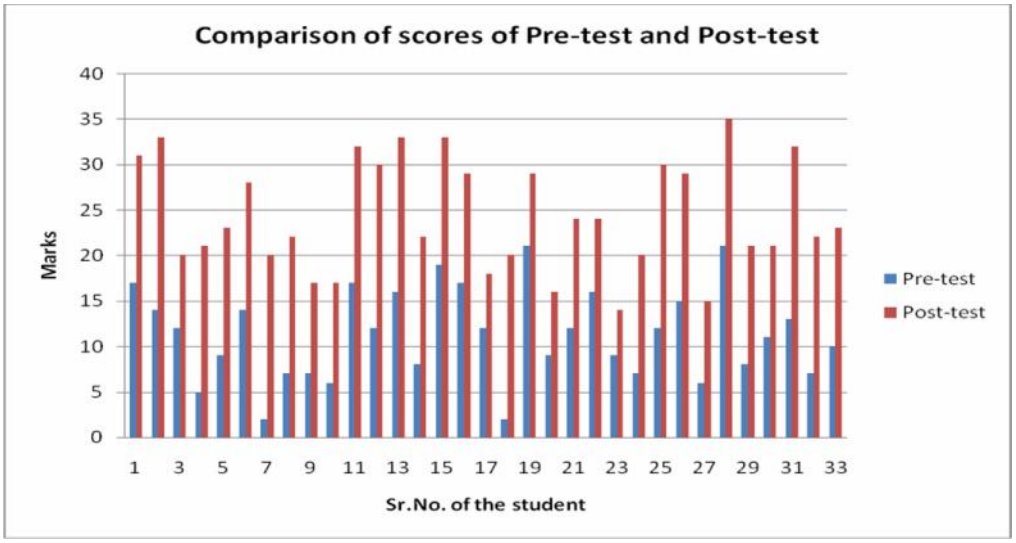
t-value (cal.) > table t-value at (0.01) level

There is significant difference between mean final scores of pre-test and post-test at 0.01 levels so null hypothesis is rejected. Thus the interactive teaching program, prepared by using interactive teaching strategies was effective

Graph

In the present study, a bar graph was drawn to show the comparison between the scores of pre-test and post-test in Science and technology. On X-axis the serial number of the teacher trainees was shown while on Y-axis the marks obtained by the teacher trainees were shown. The bar graph shows the achievement of teacher trainees in Science and technology when taught by using interactive teaching strategies.

Graph 1



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Observations

From the bar graph it is observed that the scores achieved by S.Y.D.T.Ed. Teacher trainees in the post-test are more than the scores obtained by them in pre-test.

Conclusions

From the above bar graph it was concluded that the interactive teaching program prepared by using interactive teaching strategies was effective.

Major findings

1. The teacher trainees have shown improvement in the achievement of Science and Technology, when the interactive strategies were used for teaching.
2. The teacher trainees were motivated to learn Science and technology.

Implications

This study implies that use of appropriate interactive teaching strategies can be used effectively for better achievement in Science and Technology.

Conclusions

- The effect of the teaching program was positive
- The teaching program prepared by the researcher using interactive teaching strategies. was effective in acquiring better achievement in Science and Technology.
- The students developed lot of interest in learning Science and enjoyed the process of learning.

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