

EFFECTIVENESS OF INTEGRATED TEACHING PROGRAMME ON PROBLEM SOLVING SKILLS

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Abstract-The integrated teaching programme in enhancement of problem solving Skills amongst teacher trainees were assessed by administrating standardized and self prepared tool, problem solving skill and reaction towards integrated teaching programme respectively. The study was conducted on 40 teacher trainees of the registered coeducation teacher training institute of Aligarh district, Uttar Pradesh. The process included intervention programme for four weeks. The issues included to problem solving skill based through integrated teaching programme. The findings revealed that Integrated Teaching Programme highly enhanced problem based learning.

KEY WORDS: Problem solving, integrated teaching, Teacher trainees.

1. INTRODUCTION

“An integrated approach allows learners to explore, gather, process, refine and present information about topics they want to investigate without the constraints imposed by traditional subject barriers (Pigdon and Woolley 1992)”. Integrated learning encourages students to see the interconnectedness and interrelationships between the curriculum areas. Rather than focusing on learning in isolated areas, an integrated program is based on skill development around a particular theme that is relevant to the learners in the class. An integrated lesson includes all activities containing opportunities for students to learn more about the content. Learners develop a deeper understanding of content through a range of purposeful activities (Smith and Ellery 1997). Students are active learners who search, interpret, communicate, and develop learning amongst both others and themselves. It allows students to construct meaning using their prior knowledge on a subject, and new knowledge gained during the learning process. The most important aim of any teaching is to improve the instructional effectiveness in an interactive atmosphere and to improve or shape the curriculum. Here comes the role of Integrated Teaching Programme. Integration of teaching has an important purpose of assisting the teacher to have a wide range of approaches for creating a proper interactive environment for learning. Integrated teaching is an approach for problem solving. It's a logically prepared framework for thinking capabilities: an built-in procedure indicates how exceptional elements of considering are related and how they are able to be easily coordinated. An extra level of integration happens when built-in instructing Programme [ITP] provides a “customary context” by means of showing that an identical thinking abilities and ways are used in a broad sort of activities. If ITP, is used in a vast sort of areas, then (particularly when academics call attention to the transitive good judgment that “if Science makes use of ITP and historical past makes use of ITP and tune makes use of ITP, then the methods of considering utilized in Science and history and music are related”) students will admire that a lot of what they are learning in one area of university can also be transferred to different areas and can be used in useful actual-existence circumstances. Hence, the integrated teaching programme needs to be encouraged amongst today's teacher trainees.

Integrating teaching programme incorporates the idea of unity between forms of knowledge and the respective methods. Integration requires a multidisciplinary approach which recognizes the importance of the transferability of key concepts, skill development and its application. It involves planning drawn from two or more contents, methods of teaching, learning and assessment program. Integrated Teaching Programme can assist teachers and students recognize the Reasoning, Decision making, Critical Thinking & Thinking creatively on wide range of subject areas. These areas are related to Integrated Teaching because they all use the methods of design and thus are related to each other. This transitive characteristic of integrated teaching, which can be used in many areas of life, thus connecting these areas with each other provides a common context for instruction in different areas, thereby making it simpler to develop a intention- directed method for a coordinated teaching of pondering potential across the curriculum. It's a switch of thinking skills from one field to a different.. The foundation of this technique is a ‘problem solving climate’. This consists of 3 key elements: a positive learning environment which addresses the basic areas of safety, trust and an overt valuing of all thinking activities as intrinsic to the learning process, and meet cognitive awareness. Within this climate, students are able to make effective use of a discipline- specific problem solving to guide the learning process. Two threads run throughout: a collaborative engagement with and effective technique of professional behaviors; and consistency throughout the learning process. On this foundation, the

educator chooses appropriate strategies to maximize collaborative learning, support the development of problem solving skills and encourage student independence. Such a technique is congruent with the established principles of problem based learning.

2. PROBLEM SOLVING SKILL

A problem is a situation experienced by an agent different from the situation which it ideally would like to be in. A problem is solved by a sequence of action that reduces the difference between the initial situation and the goal. A problem arises when we need to overcome some obstacle in order to get over from our current state to a desired state. "Problem solving is cognitive processing directed at achieving a goal when no solution method is obvious to the problem solver (Mayer and Wittrock 2006, p.287)". "This definition consists of 4 ingredients: (1) problem solving is cognitive, that is, problem solving occurs inside the problem solver's cognitive system and might most effectively be inferred from the problem solver's behavior, (2) problem solving is a approach, that is, problem solving involves applying cognitive procedures to cognitive representations within the problem solver's cognitive method, (3) problem solving is directed, that is, problem solving is guided by the problem solver's targets, and (4) It is individual, that's, problem solving depends on the expertise and skill of the problem solver". Problem solving is related to other terms such as thinking, reasoning, decision making, critical thinking, and creative thinking. Thinking refers to a problem solvers cognitive processing, it includes both directed considering (which is main issue problem solving) and undirected thinking (equivalent to daydreaming). Thus, considering is a broader time period that includes problem solving as a subset of pondering (i.e., a variety of considering, i.e., directed thinking).

Well-developed problem-solving skills are important for a wide variety of reasons. First, they are important for real life. Daily each adults and kids ought to solve problems. The potential to process a situation with an "i can" attitude begins early on. By means of serving to babies observe that they are able to determine matters out, you encourage a strong perception in their possess abilities. In addition, good-developed problem solving skills are principal for future learning in math, science, language and social reviews. Again, by encouraging children to solve their own problems at a young age, the development of problem-solving skills is promoted. Problem-solving skills need to be introduced and reinforced through a wide variety of hands on, developmentally appropriate activities. Problem solving is a fixture in life. One has to be able to solve problems. Problems pop up every day. Commonly they are small and sometimes they are huge. Generally solving a problem is a matter of existence and death and different instances it's basically a matter of retaining your sanity. Just right problem solving potential empower scholars of their educational, authentic, and personal lives. Nationally and internationally, there is developing cognizance that if education is to produce expert thinkers and innovators in a rapid-altering world economy, then problem solving knowledge are more important than ever. The capability to solve issues in a range of learning contexts is major for the development of knowledge, understanding and efficiency. Requiring students to engage with difficult, respectable main problem solving encourages them to use content material advantage in progressive and artistic approaches and promotes deep understanding.

Problem solving skill is a set of state of knowledge applied to solve the problem causing & controlling knowledge transverse through intermediate state. Problem skill is an important aspect that requires conscious patterns during solving the problem; Newell introduced the problem skills principle as focus. Mainly there are four components of problem skill, which are identified during Problem Solving. These components are interrelated and inter connected to each other. The four components of Problem Skills are as follows.

2.1 State Of Knowledge

State of knowledge is the stage in which the knowledge specification. Type and situation of problem is known. State of knowledge helps to decide the type of problem means the problem is structured, unstructured, cries related problem, when problem skill is created then we have to know about the situation of problem i.e. the problem is created in which environment, what uncertainty, it have and what is the risk for problem. So it is the first step for identify a problem space.

2.2 Operators

Operators are action taken up to solve the problem. For solving the problem skill, firstly measure the difficulty of problem and select a stage which is connected to difficulty level. All the stage are arranging in sequence and use analogy which is mean and analysis i.e. its starts from beginning to end and also use performance, analysis. After that, every stage is being compared to each other then operator is selected. .

2.3 Constraint

Element, factor or sub system that works as friction against the action are sought to eliminate or minimize it. Constraint is the new steps after choosing the operations it's defined the limitation while selecting operators.

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Constraint propagation helps in modifying a constraint to solve easily either change in operation and action. Time constraint is also a limitation because it creates the barrier to select the operators.

2.4 Control of Knowledge

Control of knowledge is decision for selecting the required action opted for solving the problem. Control is the next stage after recognizing the constraint. Knowledge of the problem related operators helps to recognizing solution of problem. There is the variation present in reorganization the solution of operators and for that SWOT analysis is used means it Indicates Strength, weakness, opportunity, threat for solution of Problem. It has an effect of cost in term of time and energy, timeline benefit acceptability. The purpose of problem solving process is to develop academic and behavior intervention strategies that have a high probability of success.

3. NEED & SIGNIFICANCE

As mentioned earlier, Integrated Teaching Programme can incorporate the idea of unity between forms of knowledge and the respective techniques. The foundation of this technique is said to be a problem solving climate. Therefore integrated teaching programme for inculcating problem solving skills could be developed and implanted in classroom for enhancing problem solving skills.

Researches conducted on integrated teaching depicts that students learn better when taught through this approach. Looking at the benefit of integrated teaching in problem solving skills the researcher needed to know the effectiveness of integrated teaching to foster problem solving skills amongst teacher trainees. One of the studies cites female learners as better planner to solve mathematical problem, so is the case analogous when implied on teacher trainees. Similarly, one of the studies inferred bachelor students' willingness towards problem solving as medium. If so what would be the case when graduate teacher trainees would be involved. Many studies on integrated teaching have been conducted in various fields. But none of the study was found in relation to integration of two or more teaching techniques. There has been less focus on integrated teaching programme for pre service teachers. One of the studies related to integrated teaching "In-service Teacher Development for fostering Problem based Integration of Technology" is very sketchy that too in foreign context.

Hence development of an integrated teaching programme for teacher trainees seemed a relevant area of study. Correspondingly affect of the programme for development of problem solving skills amongst teacher trainees in respect to gender and academic degree in respective teaching subject was considered. Thus the investigator initiated to develop an integrated teaching programme in terms of fostering problem solving skills.

4. OBJECTIVE

The objectives of the study were as follows.

- To study the effect of integrated teaching programme on problem solving skills amongst teacher trainees.
- To study the change in reaction towards Integrated Teaching Programme amongst teacher trainees.

5. HYPOTHESIS

The hypothesis of the present study is given below.

- There is no significant effect of Integrated Teaching Programme on Problem solving skills amongst teacher trainees.
- The mean scores of reaction towards Integrated Teaching Programme before and after are not significantly different.

6. METHODOLOGY

6.1 Sample

The present study is experimental in nature. For this study, the population constituted of the registered teacher training institute of Aligarh district, Uttar Pradesh. Amongst teacher training institutes, one of teacher training institute of district Aligarh was randomly selected. Thereby forty graduate teacher trainees was randomly selected & considered as Treatment (integrated teaching programme).

6.2 Design and Process

The study was intervention study where pre post experimental group design was carried out. For this study randomly selected teacher trainees of teacher training institute of Aligarh district was chosen. The study would be conducted phase wise. In the first phase, forty teacher trainees was act as experimental group Permission from the administrator of the institute was to be sought for the conduction of the research. After obtaining the permission, the tools for this

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study will be procured. In the second phase, the process will incorporate two sub phases. In the first sub phase pre problem solving skills would be measured by problem solving inventory prepared by Anupriya kumari and pre reaction towards integrated teaching programme measured by self made reaction towards integrated teaching programme inventory. In the second sub phase would include orientation phase were introduced to the features of integrated teaching programme and steps of problem solving skills would be given to the experimental group.

The third sub phase would be the treatment phase. This was follow the treatment that is the integrated teaching programme will include Problem Statement, Classroom Arrangement, and Problem Solving Techniques where consciously Problem Solving Skills will be incorporated. In each step of problem solving, state of knowledge, operators, constraint and control of knowledge would be continuously persuaded. Effect of integrated teaching programme on problem solving skills by including 5 issues which were related to learners, school, and teaching and life skill problems. In all these, teacher trainees were exposed to enhancement of problem solving skills. The treatment will be carried out for nearly one month. Lastly on the completion of effect of integrated teaching programme on problem solving skills would be again measured by post problem solving inventory and post reaction test towards the treatment. The procured data from different tests and inventory would be further analyzed statistically.

6.3 Issue Wise Performa (Problems and Integrated Areas)

The inculcate the integrated teaching programme, activity oriented problems were taken up. The problems based on integrated teaching on problem solving Skills were as follows.

Table-6.1 Issue Wise Performa

S.No	Problems	Character connections		Activities	Durati on
		Focused issues	Area integration		
1.	School Bullying	<ul style="list-style-type: none"> • What is 'Bullying'? • Why care about bullying? • What's the affect of bullying on student & school • Strategies to stop Bullying 	<ul style="list-style-type: none"> • Sociology • Law • Psychology education • Administration & management 	<ul style="list-style-type: none"> • Brainstor ming • Discussi on • Devil's advocate 	90 min
2.	Difficulty with literacy	<ul style="list-style-type: none"> • Define literacy • Causes of literacy • How we can improve literacy • Why is literacy important • impact of literacy on economic growth and population growth 	<ul style="list-style-type: none"> • Law • Economics • Psychology • Education • Teaching Technology 	<ul style="list-style-type: none"> • Brainstor ming • Discussi on • Devil's advocate 	90 min
3.	Improvement of academic performance	<ul style="list-style-type: none"> • Factors affecting weak students • Causes of low academic achievement • Enhancement of classroom & teacher effectiveness 	<ul style="list-style-type: none"> • Psychology education • Sociology • Educational technology • Special education • Mass and media 	<ul style="list-style-type: none"> • Brainstor ming • Discussi on • Devil's advocate 	90 min
4.	Improving School attendance	<ul style="list-style-type: none"> • How important is attendance to school success? • Why students don't attend classes? • What Factors Contribute to Effective attendance Policies? 	<ul style="list-style-type: none"> • Sociology • Economics • Law • Psychology education • Administration & management • Educational • Technology 	<ul style="list-style-type: none"> • Brainstor ming • Discussi on • Devil's advocate 	90 min

5.	Paper bags and protection of earth	<ul style="list-style-type: none"> • Process of Polythene Production • Consumption of plastic bags • Harmful effects 	<ul style="list-style-type: none"> • Science • Economics • Sociology • Law • Educational technology • Environmental education 	<ul style="list-style-type: none"> • Brainstorming • Discussion • Devil's advocate 	90 min
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Thereby, 5 issues' based on problem solving skills were taken up as an experimental study. The total duration taken up to complete the treatment was 20 days.

7. TOOL

The study would include the following tools.

7.1 Reaction Towards Integrated Teaching Programme

For evaluating the Reaction towards Integrated Teaching Programme was developed a inventory by the investigator. In this inventory different statements were stated related to problem statement, classroom arrangement and problem solving techniques. In total 30 items was constructed which included 11 items in problem statement, 05 items in classroom management and 14 items in problem solving techniques. The tool developer had calculated content validity and it was found 90.83.

7.2 Problem Solving

The Problem Solving Skills of the teacher trainees will be measured by Problem Solving Detection Test constructed by Anupriya Kumari. The test includes components such as State of Knowledge, Operators, Constraints, Control of Knowledge. The reliability of the test is .80.

8. DATA ANALYSIS

For analyzing the data following statistical techniques were used.

- For studying the effect of integrated teaching programme on problem solving co related t-test were used.
- The adjusted pre score of reaction towards integrated teaching programme with that the post score of reaction towards integrated teaching programme were analyzed using co- related t-test.

9. FINDINGS

- The problem solving of skills of teacher trainees were enhanced through Integrated Teaching Programme.
- The reaction towards Integrated Teaching Programme exhibited better Post- integrated teaching programme than Pre-integrated teaching programme.

CONCLUSION

The present study is beneficial for administrators, teachers, students and parents. Administrators run the institutions. So this study they shall know about the benefits of Integrated Teaching Programme as an integration of daily teaching, school, student and daily life issues. This study explains the need of Integrated Teaching Programme in problem solving skill. After home, College or institution, teacher is the first person which is responsible for the overall development of the student. Teacher is the person who gives the students an ideal picture by providing learning environment to grow in their own place. In this context, Integrated Teaching helps to recognize their right and responsibilities. Thereby the teacher trainees can enhance their knowledge and increase the usage of this programme.

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