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EFFECT OF INTEGRATED TEACHING PROGRAMME, DISCIPLINE AND THEIR INTERACTION ON PROBLEM SOLVING SKILLS

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***Abstract*:** The aim of this study. Effect of integrated teaching programme (ITP), Discipline and their interaction on problem solving skills amongst teacher trainees. The study was conducted on forty male and female teacher trainees. The study was intervention study where pre post experimental control group design was carried out. The data were analyzed through factorial ANCOVA. The finding revealed that there was a significant effect of interaction between ITP, discipline and problem solving skills when pre problem solving scores as co vitiate.

INTRODUCTION

Integrated Learning is a meaningful integration of subjects focusing broad areas of study to explore knowledge and connecting it to real life problems or environment. It is the teacher's purposeful planning of strategies and inducement of learning to facilitate and enhance learning across key learning areas. In an integrated learning curriculum unit, activities contain opportunities for students to learn more about the content. So, integrated learning across disciplines is an effective way to meet the challenges of the high stakes environment while engaging students in learning. Integrated learning denotes coordination or different subjects, activities, method, resources and skill to ensure harmonious functioning. In field of education integrated learning is defined as the coordinates of different teaching learning activities to ensure the effectiveness of educational process for more effective learning. This learning occurs which is imparted though integrated teaching. An integrated learning allows learners to explore, gather, process, refine and present information about topics they want to investigate without the constraints imposed by traditional subject barriers. It engage learners in purposeful, relevant learning. Integrated learning connects skill and knowledge from multiple sources and experiences. It allow applications of skills and practice in various seating, utilizing diverse and even contradictory point of view and thereby understanding issues and positions contextually.

INTEGRATED TEACHING AND ITS TYPES

Integrated Teaching includes the integration of content with skills and process. Integrated teaching is a type of learning theory that is used to describe a movement towards integrated lesson helping students make connections across curricula and draws together knowledge, skills, attitude and values from within or across subject areas. Integrated teaching is mainly three types that is Within subject areas, Between subject areas and the third one is Beyond subject areas.

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 easier to develop a goal- directed strategy for a coordinated teaching of thinking skills across the curriculum. It's a transfer of thinking skills from one area to another. 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.

So Integrated Teaching is an approach for the development of "Problem Solving Skills", which conducted the teaching in inclusive manner for all over the curriculum in as one dissolved study, through which the problems associated with students resolved in better way. This way of teaching is much better than the isolated subjective wise teaching. The linking among the subjects or curriculums build a core in the students though which they can better analyze/scrutinize the concept. As the teacher training is a very wide process because the application of teaching never can supposed to be mono centric rather than it need to be multi-nodal which can cover the least concept of all cores concerned.

1.2.0 PROBLEM SOLVING SKILLS

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 solving skills principle as focus. Mainly there are four components of problem solving skill, which are identified during Problem Solving skills. These components are interrelated and inter connected to each other. The four components of Problem solving Skills are as follows.

- STATE OF KNOWLEDGE
- OPERATORS
- CONSTRAINT
- CONTROL OF KNOWLEDGE

1.2.1 DEVELOPMENT OF PROBLEM SOLVING SKILLS

Problem solving includes integration of concepts and skills to get over the unusual complete situations (stones,1994). Solving a problem means to find or create new solutions for the problem or to apply the new rules to be learned (mayer & wittrock,1996). Though Problem solving skill is one of the generic life skills as reported by World Health Organization in 1999.As per concerning the problem solving is a phenomenon of understanding the gaps & queries in academic minds, which need to be addressed well. This process means development of problem solving skills can be conducted through thousands of ways/ strategies. As per concerning to the teacher training scenario optimistic steps are defined as follows.

1. Evaluating the problem: first of all for evaluating a problem, the nature of the problem is required to get understand and make it addressed. Every problem as its own nature or character which need to be addressed. For framing the problem the question formulation need to be done. Then gather all the information required in a systematic manner. After that the data collected need to be collate and organize well to be work upon. Now the information will be represent in a condensed and scrutinized form. And at last desired objective is able to be defined.

2. Managing the problem: first of all in this phase use the information collected effectively. Then break down a problem into small parts. After that using some techniques such as brain storming, discussion, devil's advocate, etc. now analyze deeply these abstracts after that steps can be identified to achieve a desired goal.

3. Decision making: in this phase decision need to frame between the possible solution for the action taking. Now the further required data need to be collecting before action taking. Then the final decisions need to be build for the resources to complete for the possible solution.

4. Resolving the problem: in this phase the implementation of above defined actions need to be cater. Then provide information up to the rest students. Along with this it is also important to review their progress.

5. Examining the results: in this section, monitoring for the result of implied action will be done. After that the review of the problems paralelly need to be done to avoid future errors**.**

1.3.0 RATIONALE OF THE STUDY

In the early history, the manner of sharing the skills, education and social behavioural component existed. In context of education, a teacher trainee can be defined as one who is concerned for learning at a minor level for particular job to improve the skills. They are supposed to have a better assistance with the lead teacher. For the conduction of such skills upliftment, various "Teaching Education Programmes" are required to implement on these teacher trainees. This programme is equipped with multi nodal perspectives as knowledge, behaviours, attitude and skills, for increased effectiveness in classrooms. Here, the context is concerning a teaching programme i.e. integrated teaching Programme. Integrated teaching programme is a multidisciplinary approach which focuses on a coherent/ inclusive learning process rather than in isolation form. It allows a teaching framework in which unity of different subjects/areas or curriculum streams arranged at a single platform.

A very common problem observed usually in the teacher trainees that, they are not so efficient in opposition to the raised issues (learners, teaching, schools, and life skills) & to reply successfully, they required some skill development. The problem solving skill could be an effective measure to deal such skill development amongst teacher trainees. Psychology plays a very vital role in the entire teaching domain as it grows a sensitive bond in between the teacher and learner (teacher trainee). The response of the learners achieved into various attitude forms. This attitude is an approach (in integrated teaching aspect) against such teaching programmes i.e. how much they have absorbed & how much they can represent.

So, integrated approach is a meaningful integration of subjects focusing broad areas of study to explore knowledge and connecting it to real life problems or environment. It is the teacher's purposeful planning of strategies and inducement of learning to facilitate and enhance learning across key learning areas. Integrated approach denotes coordination or different subjects, activities, method, resources and skill to ensure harmonious functioning. In field of education integrated learning is defined as the coordinates of different teaching learning activities to ensure the effectiveness of educational process for more effective learning. This learning occurs which is imparted though integrated teaching. It engage learners in purposeful, relevant learning. Integrated learning connects skill and knowledge from multiple sources and experiences. It allow applications of skills and practice in various setting, utilizing diverse and even contradictory point of view and thereby understanding issues and positions contextually.

1.4.0 OBJECTIVE

To study the effectiveness of integrated teaching programme, Discipline and their interaction on problem solving skill amongst teacher trainees by considering pre problem solving scores as covariate.

1.5.0 HYPOTHESIS

There is no significant effect of integrated teaching programme, Discipline and their interaction on problem solving amongst teacher trainees by considering pre problem solving scores as co variate.

1.6.0 METHODOLOGY

SAMPLE

The present study is experimental in nature. For this study, the population constituted of the registered coeducation teacher training institute of Aligarh district, Uttar Pradesh. Thereby forty male and female teacher trainees was randomly selected & considered as experiment (integrated teaching programme) and other institute 40 male and female teacher trainees considered as control group.

DESIGN AND PROCESS

The study was intervention study where pre post experimental control group design was carried out.

Table 1.0 Schedule presentation of experiment

ACTIVITY	EXPERIMENTAL GROUP	CONTROL GROUP	TOTAL TIME
Pre testing of problem solving skills	Administration of problem solving inventory	Administration of problem solving inventory	35
Orientation	Introduction of ITP on problem solving skills Formation of ITP group	Continued with normal activities of classroom	35
Treatment **First cycle**	Classroom arrangement Problem solving sessions A. Stages 1. State of knowledge/problem recognition 2. Operators/ measure of problem difficulty 3. Constraints / limitation (on selecting operators) 4. Control of knowledge/ solution seeking B. Strategies 1. Brain storming/ discussion Devil's advocate (making learners to rethink approach to problem)	Continued with normal activities of classroom	35
Second cycle	Practice of ITP on problem solving by including 10 issues which were related to learners, teaching, and school & life skills.	Continued with normal activities of classroom	35 X 10 = 350
Post test of Problem solving inventory	Administration of problem solving inventory	Administration of problem solving inventory	90

1.7.0 TOOL

The study would include the following tools.

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.

1.8.0 DATA ANALYSIS

For studying the effect of integrated teaching programme, Gender and their interaction in terms of facilitation on problem solving skills amongst teacher trainees by considering pre problem solving scores ANCOVA were used.

1.9.0 RESULTS AND INTERPRETATION

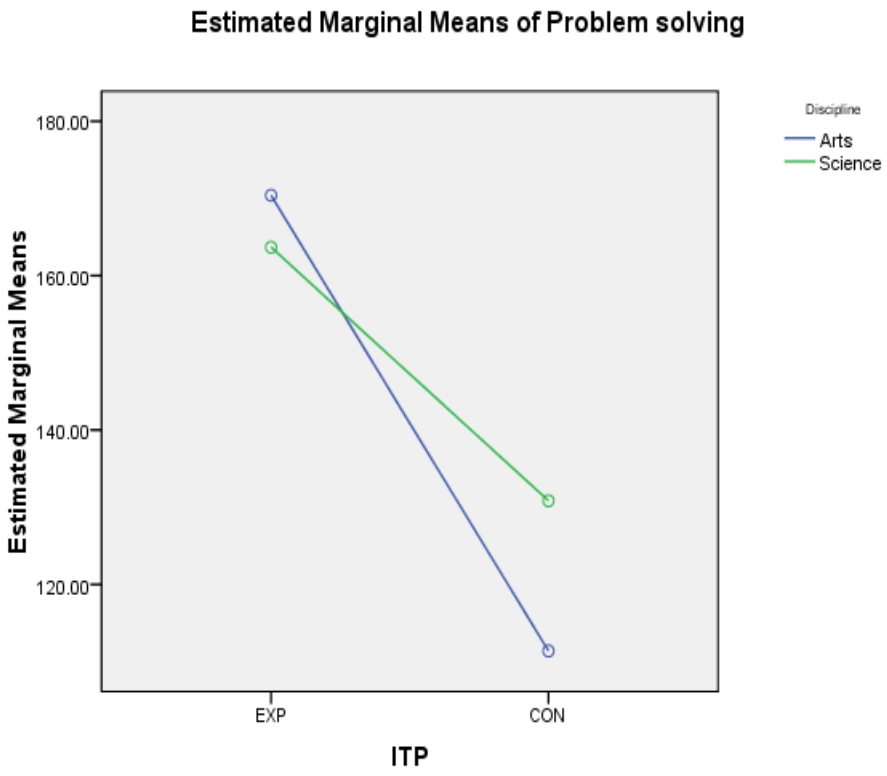
The objective was to study the effect of ITP, Discipline and their interaction on problem solving skills by considering pre problem solving scores as co variate. There were two levels of treatment namely ITP and conventional method on the basis of Discipline. The participants were divided into the two levels namely Arts and Science. Thus the data were analyzed with the help of factorial design ANCOVA where pre problem solving was taken as covariate the results are given in table 1.1

Table 1.1 Summary of 2*2 factorial design ANCOVA for ITP, Discipline & their interaction on problem solving (N=80)

SOURCE OF VARIANCE	Df	SS	MSS	F
Treatment (A)	**1**	**41982.124**	**41982.124**	**339.446****
Discipline (B)	**1**	**769.643**	**769.643**	**6.223**
A*B	**1**	**3352.892**	**3352.892**	**27.110****
Error	**75**	**9275.872**	**123.678**	
Total	**80**	**1726809.00**		

****Significant at 0.01 level**

The F-value for interaction between Treatment & Discipline is 27.110, which is significant at 0.01 level with df=1/80. It indicates that there was a significant differential effect of the resultant of interaction between ITP & Discipline on Problem Solving of teacher trainees. In light of this, the null hypothesis that "there is significant effect of interaction between ITP on Problem Solving of teacher trainees, is rejected. In order to study the found of effect of ITP & Discipline on problem solving the graph 1.1 has been plotted.



From graph 1.1 it can be seen that Discipline (Arts & Science) were found to posses problem solving to be different. But the Treatment effect on the problem solving amongst Arts & Science teacher trainees was slightly same to an extent, where as in conventional group of problem solving Discipline (Arts & Science) differed.

1.10.0 CONCLUSION

There is significant effect of Integrated Teaching Programme, discipline on problem solving teacher trainees when pre problem solving scores considered as covariate. It means problem solving skills of Male and female teacher trainees were better after the treatment. The present study is beneficial for Administrators, Teachers, Teacher Educators, Students and Parents too.

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