

Original Article

# Innovative Practices in D.EL.ED Student Teachers with Reference to Learning Outcomes of Social Science: A Way to Improving the Questioning Skill

Jayamala Sethi

Govt. Ete, Langaleswar, Balasore, Odisha

Received: 03 November 2022

Revised: 05 January 2023

Accepted: 16 January 2023

Published: 31 January 2023

**Abstract** - Constructivist classrooms are structured in such a way that learners get deeply involved in learning experiences, meaning-making actions, imagination, hypothesising, and drawing inferences. The teacher must recognise how pupils use their experiences, prior knowledge and perception. So far, some topics like; ‘Our Environment, Atmosphere’ etc. were selected for classroom transactions, and student teachers were involved in preparing questions. According to the constructivist approach, the student teachers were able to prepare questions in groups and individually on the social science topics. In order to conduct a study on developing questioning skills in social science in class VII, the researcher formulated the following objectives. These are; (a) to examine the present status of the student teachers in preparing the questions on the social science topics, (b) to develop the competencies of questioning skill through strategic intervention with reference to LOs of Social science, (c) to evaluate the competency of student teachers in preparing a variety of questions after orientation (d) to assess the achievement of students in social science. The tools like pre-test and post-test questions and model question papers were prepared by the researcher and administered for data collection. The sample was purposively selected and consisted of 50 numbers of student teachers of Govt. ETEI, Bagudi, Balasore for the study. After two weeks of intervention, a post-test was conducted, and it was found that only 65% of student teachers could make high-order questions, which was only 30% in the beginning. 80% of the student teachers could prepare worksheets based on social science concepts. Altogether, so many questions like probing questions, exploratory questions, thought answer type questions, multiple choice questions, and one-word answer type questions were developed during the workshop. They were of high order and low order. This strategy is useful for slow learners and high achievers. Other schools can also use these strategies.

**Keywords** - Questioning skill, Intervention, Constructivist pedagogy, Student teachers.

## 1. Introduction

One of the major focuses of UEE is to provide quality education to all children, irrespective of caste, creed, colour and sex, at the elementary level. To fulfil the objective, the students must fulfil the learning competencies in each subject at different grades/ levels. To ensure the children's minimum learning achievement, the teacher has to adopt new techniques for developing their competencies. Quality education depends upon the quality teacher or a good teacher; a good teacher can be made through quality teacher education. So, teacher education is the most important part of the educational system and is also a pivotal thing in the learning process. Teaching is a two-way process, not a one-way process. For effective teaching, teachers must find innovative and effective techniques to present new concepts for motivating children. The classes have to be interactive, with dialogue and sufficient learning materials. A teacher must be aware of the following essentials of teaching skills such as; planning a lesson, motivating students, selecting, Preparing and using teaching-learning materials; adopting teaching-learning strategies; designing learning activities; essentials of the content, consolidation, elaborations, group activity,

continuous and comprehensive evaluation, discipline, multi-level and multi-grade activities, effective communication and interaction, etc. These are the most important aspects of the teaching-learning process. “Good teaching looks effortless because a teacher's knowledge and experience are invisible. Teaching is a tricky blend of action, a way of contextualising knowledge. Good teaching is, in fact, complex and challenging, and even the best teachers face difficulties translating formal knowledge into effective practice (Blase, 2006)”. The ability to ask and answer questions is central to Learning. For more than two thousand years (since Socrates), the question has been an integral part of teaching.

Only within the last decade and a half, however, has extensive research been directed to questions and questioning strategies. The information which has been generated from this research indicates that teachers largely have been asking the wrong questions. We have focused primarily on questions regarding the specific information students processed rather than questions to promote Learning. In the past, teachers primarily questioned students to ascertain whether or not they were learning the



book contents and to see if students were paying attention in class. Now -a- days, questions play a central role in the learning process. Because of this, we as teachers need to plan our questions carefully. If a teacher utilises questions effectively, students will discover that the question is a valuable learning tool for assessing students' achievement. And it is also an important device through which they can organise their thinking to achieve certain objectives.

## 2. Review of Related Literature

The art of questioning skill is the most important part of a teacher in the teaching-learning process. Studies reveal that the purpose of questioning is to provide teachers with the knowledge to assist them in making decisions about improving classroom instruction. It also enhances the students thinking, achievement and attitudes. William Willen argues that questions are used to stimulate students' participation, to conduct a review of materials previously read or studied, to stimulate discussion of a topic, issue or problem, to involve students in creative thinking, to diagnose students' abilities, to assess students' progress, to determine the extent to which objectives have been achieved, to arouse students' interest, to control students, behaviour, to personalise subject matter, and to support students, contributions in class. Furthermore, Amdesselase suggests that questioning serves a number of purposes. It is used to clarify and focus on important ideas, promote new ways of looking at an issue, encourage further inquiry, and prepare oral evaluations and examinations.

## 3. Rationale

In teacher education programme the pre-service teacher education programme is a hardship work in the educational system. As the pre-service teacher education programme creates future teachers, its role is also very important. High-quality teachers need high-quality training. So the pre-service training programme calls for high-quality teachers with infuse of all kinds of resources, dedication, determination etc., for developing the education system. The student teachers will show high performance in the teaching-learning process when teachers with higher knowledge of the subject teach them. Therefore, teacher educators must develop knowledge of their content areas and pedagogy. The student teachers will be more benefitted when teacher educators demonstrate and implement varied pedagogical approaches in the courses. During the practice teaching, it was found that student teachers made many mistakes in planning the lesson, designing the activities and, most importantly, framing questions according to the learning outcomes. They are not good at designing questions. The questions are not properly distributed. No corrective exercise is done in each and every type of question. In relation to this, the researcher wanted to orient the student teachers in designing the various questions and assessing student performance in social sciences.

## 4. Objectives

The Objectives of the study were;

- To examine the present status of the student teachers in preparing the questions on the Social Science topics.

- To develop the competencies of questioning skills through strategic intervention with reference to LOs of Social Science.
- To evaluate student teachers' competency in preparing various questions after orientation.
- To assess the achievement of class-VII students in Social Sciences as a result of the quality question-based intervention.

## 5. Hypothesis

The adopted strategy will positively impact improving the questioning skill of student teachers and student achievement in social sciences.

## 6. Delimitation of the Study

The study was concentrated on the following topics meant for the students of Class VII; viz

- Our Environment
- Atmosphere

## 7. Methodology

### 7.1. Tools

The tools like pre-test and post-test questions and model question papers were prepared by the researcher and administered for data collection.

### 7.2. Sample

Two-way sample technique was adopted. One sample consisted of 50 numbers of student teachers of Govt. ETEI, Bagudi, Balasore and 25 nos. of class VII students of a practicing school were purposively selected for the study.

### 7.3. Statistical Techniques

Calculation of Percentage, Mean percentage, SD, 't'-value and Graphical methods were followed.

### 7.4. Procedure to be Followed

Taking into the above objectives, an orientation programme was given to the student teachers in workshop mode on preparing questions in social science. Before preparing the questions, the student teachers did the following exercises: concept mapping and content analysis of the selected topics. It was done in groups; they prescribed the work done by the student teachers, and a detailed discussion was made with modifications to their work. The topics were distributed group-wise among the student teachers. They were asked to read the topics thoroughly before preparing questions. For some examples, the researcher presented model questions, and the student teachers were asked to prepare questions. Then they categorised the questions under three heads, viz- high order, mediocre and low order questions. In preparing questions, both subjective and objective types of questions were considered. The focus was given on open-ended questions with the 'Why and How' type of questions. The student teachers were also oriented on preparing worksheets based on social science concepts. All together, so many questions like probing questions, exploratory

questions, thought answer type questions, multiple choice questions, and one-word answer type questions were developed during the workshop.

**8. Intervention to be Extended**

The Interventions were adopted following the due procedure;

**8.1. Stage-1: (Whole Reading of the Content)**

In this stage, student teachers were divided into 10 groups and topics were also distributed among the groups. Then they were asked to read the topic thoroughly. After reading the contents, the students did the selected topics' concept mapping and content analysis. Some model questions were presented to them through PPT, and the student teachers were asked to prepare the questions based on the LOs of the concerned topics.

**8.2. Stage-2**

Then the questions will be discussed, and necessary corrections will be made then and there concept-wise. Factual questions will be replaced by reason-based questions to develop the reasoning ability of the students. For example, why some rivers like Ganga and Jamuna don't dry up in summer? If there was no snowfall in the Himalayas, what changes would occur in India's climatic condition with respect to physical changes? etc.

**8.3. Stage-3**

Clarifications were made and asked to prepare quality questions; the questions were presented in relation to addition and deletion, accommodating desirable questions to develop students' creative thinking.

**8.4. Stage-4**

The prepared questions passed for screening and filtering process to get questions of high order and questions to the level of average students.

Some Questions are as follows:

- What is an echo system?
- What do you mean by natural environment?
- Why is our environment changing?
- How is the atmosphere important for us?
- How does the lithosphere help human beings?
- How do human beings modify the natural environment?
- Distinguish between the biotic and abiotic environment with examples.
- Why do wet clothes take longer time to dry on a humid day?
- Why do green plants use carbon dioxide?
- How is the Ozone layer important to us?
- If there is no Ozone Layer in the environment, how will it affect human beings?
- Why is there no air pressure on the moon?

(Question Bank was developed including various types of questions like subjective, objective, open-ended, probing questions, exploratory questions, thought answer type questions, multiple choice questions, one-word answer type, short type, very short type questions etc.)

The status of questions before intervention and after intervention are as follows:

QUESTIONS BEFORE INTERVENTION	QUESTIONS AFTER INTERVENTION
1. In what ways is the atmosphere useful to humans? 2. What is an ecosystem? 3. What do you mean by natural environment? 4. What do you mean by lithosphere? 5. What is a biosphere? 6. Give the name of two major components of the biotic environment. 7. What do you mean by human-made environment? 8. Define natural environment. 9. What are the major components of the environment? Etc... (Except this, the following questions were prepared) MCQ Fill in the blanks True/ False One-word type answer Matching type	10. Why is our environment changing? 11. How is the atmosphere important for us? 12. How does the lithosphere help human beings? 13. How do human beings modify the natural environment? 14. Distinguish between biotic and abiotic environments with examples. 15. Why do wet clothes take longer time to dry on a humid day? 16. Why do green plants use carbon dioxide? 17. How is the Ozone layer important to us? 18. If there is no Ozone Layer in the environment, how will it affect human beings? 19. Why is there no air pressure on the moon? 20. How man modifies his environment? 21. Plants and animals depend on each other. Explain (Except this, the following questions were prepared) 22. MCQ 23. Fill in the blanks 24. True/ False 25. One-word type answer 26. Matching type

**8.5. STAGE-5: (Interactive Discussions through Questions)**

The students were asked to present the questions in groups, and they categorised them under three heads, i.e. high order, mediocre and low order. The question was asked in groups. One student recorded all the questions. Then students were asked to answer the questions after the student teachers corrected the answers sheets.

**8.6. STAGE-6: QUIZ**

In this stage, a quiz was organised by the students. All questions were presented phase-wise. Some pictures and video clips were displayed, and students were asked to identify the question and give the answers.

**9. Results and Discussions**

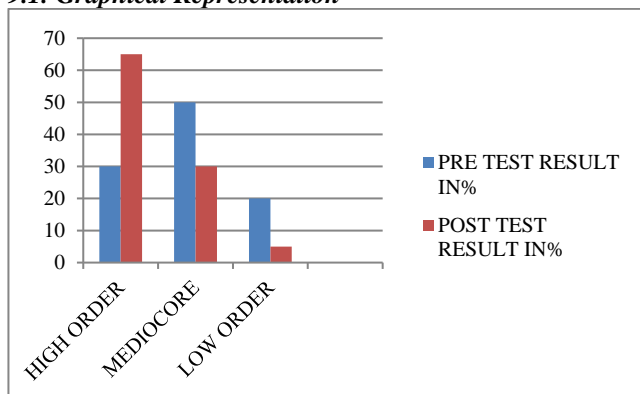
After the intervention, the student's performance was assessed by administering a post-test. Then the mean score of the learners was calculated, and statistical techniques were applied using SD and 't' values. The result of the pre-test and post-test was compared. The performance of student teachers in preparing different orders of questions was also assessed, and the result is shown below.

**Table 1. Performance of Student Teachers in Preparing Questions**

Types of Ques.	N	Before Intervention		After Intervention	
		(In No.)	(In %)	(In No.)	(In %)
HighOrder	50	15	30%	32	65%
Mediocre		25	50%	15	30%
Low Order		10	20%	03	5%

The above table shows that there is an improvement in preparing the different categories of questions with reference to Bloom's model (knowledge, comprehension, application, analysis, synthesis & evaluation etc.). After two weeks of intervention, a post-test was conducted, and it was found that only 65% of student teachers could make high-order questions, which was only 30% in the beginning. 80% of the student teachers could prepare worksheets based on social science concepts. After the intervention, many questions like probing questions, exploratory questions, thought answer type questions, multiple choice questions, and one-word answer type questions were prepared.

**9.1. Graphical Representation**



**Table 2. Performance of students in Social Science**

TEST	N	MEAN	SD	't' value	Remarks
Pre-test	25	4.8	2.07	2.07	Significant at 0.05 level
Post-test	25	6	1.95		

Based on these results, it is proved that the adopted strategy's effect has positively impacted learners' achievement. The mean of the Pre-test, i.e. 4.8, whereas the mean of Post – the test was 6, defines that the achievement level of students on the post-test is higher than the pre-test, the 't' value of the data is 2.07, which is higher than the tabulated 't' value at 0.05 level of significance. It implies a significant positive difference in students' achievement from pre-test to post-test.

**10. Findings**

- Strategies used by the researcher were useful and benefitted the student teachers to enhance their skills in preparing the questions.
- Previously factual and convergent types of questions were more; rarely divergent questions were made by the student teachers.
- Consequent to the intervention, the student teachers prepared divergent and reflective questions.
- When they prepared questions individually, it was not sound or qualitative in nature, but when they prepared the questions in a group, they became more qualitative in nature.
- Demonstration of Model questions exerted a positive impact on students.
- During group work, self-learning skills among the student were developed.
- Textbook analysis and concept mapping clarified their doubts regarding hard spots, which helped them to prepare good questions.
- They became sharp in putting questions, and the self-reading habit was developed.
- After this exercise power of reasoning was also developed.
- The student teachers applied these questions during their practice teaching in the upper primary school. They could acquaint themselves with the techniques for framing the different questions.
- The students were able to answer the questions easily.

**11. Suggestions and Conclusion**

Instead of the applied innovative idea in the lesson, student-teacher/teachers can think of other innovative ideas for designing lesson plans and preparing different questions. Traditional approaches should not be altogether thrown, but improvement can be brought about in the light of innovative ideas. Activities should be the central point in all lesson plans, but activities should not be designed for activity's sake; rather, they should be innovative and reflective, as the student trainees were acquainted with the

traditional approaches for more than one year. Ice-breaking exercises were not possible, only through one round of training. Hence there are at least three training rounds in

one workshop to help them acquire first-hand knowledge of framing the different questions.

## References

- [1] Clive Beck, and Clare Kosnik, “*Innovations Are Teacher Education: A Social Constructivist Approach*”, State University of New York, 2006.
- [2] Bhattacharjee Jayeeta , “Constructivist Approach to Learning – An Effective Approach of Teaching Learning,” *International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)*, Vol. 1, no. 4, pp. 65-74, 2015.
- [3] Carner, R.L. (1963). Levels of questioning. *Education*, 83,546-550
- [4] Corey, S.M., *Action Research to Improve School Practices*, Bureau of Publications, Teachers College Press, 1953
- [5] *Department of School and Mass Education*, Textbooks on Social Sciences, Government of Odisha. 2010.
- [6] Fan Akpan Fan, Mayange Levi, and Aminu Shammah “ Classroom Questioning as an Invaluable Teaching Strategy in Social Studies”, *Global Advanced Research Journals*, vol. 3, no.1, pp. 7-11, 2014
- [7] Jeffrey Glanz, *Action Research: An Educational Leader’s Guide to School Improvement*. Christopher-Gordon Publishers, 2014.
- [8] Kifle Azerefegn, *A Study on the Types of Teacher Questions and Questioning Strategies*, Ethiopia: Addis Anana University Institute of language Studies, 2008.
- [9] Panda, B.N and et. al (2010). Seminar Report on Quality Elementary Education on Constructivism. Published by the Regional Institute of Education, 2010.
- [10] Kim, Jongsuk (2002), The effects of teacher training as constructivist on teacher behavior and student achievements. *Faculty Research Papers on The Study of Education. 18(2)* Educational Development Research Institute, Chungnam National University.
- [11] Piaget, Jean, *To understand is to invent: The future of the education*, New York: Penguin Books, 1976.
- [12] Ernst Von Glasersfeld, “Cognition, construction of knowledge and teaching,” *Syntheses*, vol. 80, pp. 121-140, 1989. *Crossref*, <https://doi.org/10.1007/BF00869951>
- [13] Ernst Von Glasersfeld, “Learning and Adaptation in the Theory of Constructivism,” *Communication and Cognition*, vol. 26, no. 3, pp. 393-402, 1993.
- [14] Weinstein, C.E. & Mayer, R.E., *The teaching of learning strategies*, New York: Macmillan, 315-327, 1986.