Action Research in Education: Encouraging higher order thinking skills among students using Active learning strategy of Role Play

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Abstract

This is an action research report on encouraging the development of higher order thinking skills such as application and evaluation skills among students using active learning. This report documents a class-room based activity done on A level students who have taken Psychology as their subject. The active learning strategy of collaborative learning was used through the method of role-play in order to increase the application and evaluation skills among students. The confidence, clarity and performance of students in performing evaluative and application based task were compared pre and post the active learning strategy introduced and the data was collected from students using methods of interviews, objective assessment and observation. The results showed a marked increase in the level of confidence, clarity and performance post the role play activity.

Introduction

The main purpose of education is not just helping students recall information at a later point of time in life but to prepare them for their life outside the educational environment. Thus it becomes absolutely essential for students to learn when, where and how to use their knowledge in the outside world. This requires them to have the ability to evaluate and apply their learning in order to choose the relevant information or strategy from the vast amount of knowledge that they have, for a particular situation they may encounter in their future endeavors. Teacher-directed approach is the method used most often in educational setting. The teacher comes to the class and starts teaching the topic while the students assume the role of passive spectators. Thus when students are asked to evaluate or apply the knowledge they find it difficult to do so. They need to be actively involved in the classroom for transfer of learning to take place. This is what lacks in a normal classroom setting.

My aim of choosing this topic was that I realized even after telling the students the format for writing evaluative and application based answers they were not able to do so. Their knowledge and understanding for the terms and methods to be used for answering such questions were in place but they did not know when to use which term for evaluation and how to apply a particular method of research to come up with an alternative method for studying a particular psychological process or concept.

Identification of problem

Problem in application and evaluation of learnt material among students

Hypothesis

Active learning strategy of collaborative learning (role play) improves the application and evaluation skill in students

My reason for choosing active learning strategy was that during my college days I noticed that I had better retention and better understanding of information when I did an activity based on it. Role play was my favorite activity as it was not only fun to do but it also helped me to gain firsthand information about my flaws during conduction of the activity and an understanding of how to better it. The discussion posts the activity helped me gain a different perspective on things. So, I decided to use this active learning strategy of collaborative learning involving role play for carrying out my research.

The research questions that I am focusing on are:

1. Does active learning strategy of collaborative learning using role-play method help in improving application and evaluative skills in students on the learnt materials?
2. Does the confidence and clarity of students increase in answering evaluative and application based questions after using the active learning strategy of collaborative learning (role-play)?
3. Does the performance of students improve post the introduction of the active learning strategy of collaborative learning (role-play)?

Review of Literature

Active learning

Active learning is a process whereby students are given an opportunity to engage in the learning process. There are various definitions given for explaining what active learning is. According to Bonwell & Eison, (1991) there are 5 elements in active learning. 1) student involvement beyond mere listening; 2) more emphasis on the development of skills and less on transmission of information; 3) student involvement in higher order thinking skills; 4) student involvement in activities, such as reading, discussing, writing; and 5) an emphasis on students' exploration of values and attitudes.

There are many active learning strategies. Some of the broad classifications of active learning strategies are:

1. Exercises for Individual Students- Strategies that provides teachers with feedback regarding the understanding of students. E.g.: affective responses, Reading quiz.
2. Questions and Answers- Asking questions in a way that would increase the involvement of students and their comprehension of information provided by the teacher. E.g.: Socratic Method, Fish bowl.
3. Immediate Feedback-Formative assessment techniques that allow teacher to gauge the level of understanding of the taught material among students in the lecture itself. E.g.: Flash cards, Quotations
4. Critical Thinking Motivators-These strategies encourage the discussion of or thinking about the course material before presenting the theory or after presenting many conflicting theories. E.g.: The pre-theoretic intuition quiz, paradoxes/puzzles
5. Share/Pair- A technique for ensuring participation of all students that allows them to put forth their views and at the same time hear the other person's point of view too. E.g. Discussion/ note comparison/sharing
6. Cooperative Learning Exercises- These strategies help to develop problem solving skills among students and allows students to learn the skills they have not mastered, with the help of other students or teachers. E.g. Role-playing, Panel discussion

Active learning and application and evaluation skill

According to Edgar Dale's Cone of Experience (1946) Direct, purposeful experience is the most effective and long-lasting method of learning as it involves all the senses. Passive learning like seeing, listening or reading results in only temporary retention and involves higher chances of forgetting. Dramatic participation helps as it helps to experience events that we cannot directly experience and helps to keep away distraction and focus on what matter that helps learning relevant things. Active learning thus aids in creating, analyzing, and defining, evaluating and applying concepts.

According to Perkins and Salomon (1992) transfer of learning can occur in the following ways:

1. Near transfer-transfer of learning occurring in similar context

2. Far transfer-transfer of learning occurring in contexts that on surface seem alien or remote to the context.
3. Low road transfer- Transfer or learning occurs through lots of practice, making a knowledge or skill almost automatic.
4. High road transfer-: Transfer of learning occurring through deliberate mindful abstraction of an idea which involves conscious and deliberate application of the idea during relevant situation. Thus promoting near transfer and high road transfer of learning in class room teaching can help to increase the evaluative and application skill among students

According to Silberman (1996) learning should be active because to learn something well, students need to see it, hear it, ask questions about it, discuss it and most importantly do it

According to Kafai, 1996; Druin, et al, 2003; Cassell, 2002 a number of studies have demonstrated that when students are allowed to construct their own learning it results in increase in their social growth and develops higher order thinking in them. In a study conducted by Johnson, Johnson, & Smith (1991) that passive engagement of students during the lectures led to them being more focused on acquisition of facts rather than developing higher cognitive processes, such as analyzing, synthesizing, and evaluating.

Collaborative learning and application and evaluation skill

Constructivism is a learner- centric educational paradigm where learners with some prior knowledge construct their own content using collaborative learning. According to Vygotsky's sociocultural theory a child benefits through partnering with other more skillful person. The skilled partner could be a teacher, parent or any other student who acts as a scaffolding and helps the child to accomplish complex tasks and analysis that individually they could not have done.

 According to John Dewey learning should engage and expand the experiences of learners. He believed that students should learn by co-operating with each other and by doing things and not just learning facts and information. He stated that learning is effective when it is multidisciplinary and students are allowed to construct their learning. Thus, the students learn by determining how they receive, evaluate and apply their knowledge.

A recent ethnographic study done in Japan used active learning strategy of co-operative learning to engage students and found that this strategy helped to increase their knowledge and attitude about science. (House,2008). These strategies lead to empowerment in students resulting in better analytical and evaluative ability among students.

Method

Sample

There were in all 13 psychology students for this study from A Level. There were 10 students from AS and 3 students from A2. The age range was 15-17 years. There were 4 male and 9 female students in this study

Procedure

The study was conducted in premises of an international school. The study was conducted in their classroom itself over a period of 3 weeks under the supervision of the teacher. Consent was gained from the Principal of the International school section before starting the study. Consent was gained from the students to be a part of the research study although the hypothesis was not disclosed to them in order to avoid any sort of bias or demand characteristics.

In order to improve their evaluation and application skills among students, active learning strategy of collaborative learning was used. Role-play was the method used as a collaborative learning tool in this study.

In order to maintain consistency in the novelty of the learnt material, separate activities were designed for both AS and A2. At the AS level the students were divided into 2 groups of 5. They were told to design a study in order to answer Psychology AS Level, paper 2, Section A question no.1 type of question where they had to use an alternative method of studying a concept from a particular core study and were then asked to evaluate their study using the terms taught in the class. Each group was given a separate method and a separate topic to be studied using that method. Each student had to design their own study. The grouping was done only for the allocation of methods and topics.

Group 1 had to design an alternative way of studying Milgram's Obedience research using the method of observation.

Group 2 had to design an alternative way of studying Loftus and Pickerel's false memory research using the method of Case study.

On the said day at the AS level, the students came one by one and carried out their study using role play method where they assumed the role of experimenter and any of the other student/s assumed the role of the participant/s. After they had completed their study the class as a whole evaluated the study designed, thus promoting collaborative learning.

At the A2 level the 3 students were told to prepare a role play to answer Abnormal Psychology A level, paper 3, Section C type of question where they had to apply a treatment method that they had learnt in order to treat a patient with a particular disorder. Each student had to design their own treatment plan and play the role of a therapist on the said day while the other student assumed the role of a patient. Students were asked to design the following treatment programs:

Student1-Using Cognitive Behavioral Therapy to treat phobias-claustrophobia

Student 2-Using Behavioral therapy to treat addiction disorder-alcoholism

Student 3- Using Psychodynamic theory to treat affect disorder- Unipolar Depression

The students at both AS and A2 levels were given 4 days to prepare.

A debriefing session was done with the students after the role play activity was done where they were told the purpose of the study. In case they had any doubts about the study it was clarified.

Data collection

Both qualitative data and quantitative data were acquired in this study. The methods employed for data collection were:

1. **Interviews**

There were 2 interviews conducted-one pre and one post the role-play activity. The pre role play interview was used in order to identify the factors that hinders students' application and evaluative ability while answering application and evaluation based questions. The post role play interview was used to identify the factors during the activity that contributed to the development of application and evaluative ability of students. It was also done to seek feedback of the students about the task.

2. Observation

The teacher observed as the students performed the role play in order to ensure that the task is taken seriously and in order to provide them with feedback after the task. It was also done to ensure that some learning is taking place

3. Objective assessment

Objective assessment was used to compare the performance of students in writing answer pre and post the role play activity. The assessment was done by me according to the mark scheme. This was done in order to increase the validity of the findings.

Analysis of data

1. Interviews

In the pre- role play interview the students were asked about the factors that hindering their application and evaluative ability. The common themes in the problems identified were:

a. confusion about which terms to use
b. practicality of the alternate study
c. lack of confidence about what they have written
d. Lot of factual details to study
e. Difficulty in understanding what the question actually means

In the post- role play interview the students were asked about the factors that contributed to the development of their application and evaluative ability. The common themes identified were:

a. Better understanding of the task
b. Easier to write answer due to practical experience
c. Help from friends and teacher helped them understand a different perspective

The students had positive feedback about the activity. They said that they all enjoyed the task. They were asking how often we are going to do this task and said that they never thought that learning could be so enjoyable. On the whole students loved the task and also learnt from the task.

2. Observation

The observation suggested that the students were taking the task seriously but at the same time were enjoying doing the task. Some students were correcting themselves and some were modifying their study while doing the activity when things were not working out, showing that some amount of learning was taking place.

3. Objective assessment

Table 1 shows the comparison of mean objective assessment scores pre and post the role play on the evaluation and application based question. Before the role play mean objective score on application question was 3.7/10 and the evaluation question was 4/10. So the mean total score was 7.7/20. After the role play mean objective score on application question was 6.2/10 and the evaluation question was 8.4 /10. So the mean total score was 14.6/20.Thus a marked increase was seen in their score suggesting that the active learning strategy was effective.

Title	Mean score out of 10 Pre role play	Mean score out of 10 Post role play
Application question	3.7	6.2
Evaluation question	4	8.4
Mean score Total (20)	7 .7	14.6

Table 5.1: Table 1 shows the comparison of mean objective assessment scores pre and post the role play on the evaluation and application based question

Conclusion/ suggestion

The objective assessment results show that the active learning strategy of collaborative learning has helped the students to not only understand the question and content but also to increase their evaluation and application ability. The results of the data collected using all the different methods are in line with the previous theories that state that learning by doing is an effective method to study a particular concept. It is also in line with the constructivists theories which state that friends and teacher can help the students to develop skills beyond what they could have achieved on their own. Thus collaborative method of learning is also an important and effective method of learning, especially for developing application and evaluation skills among students.

Thus in order to develop application and evaluation skill it is necessary:

1. To engage the students in the task
2. Encouraging student -directed learning
3. Breaking down complex information into simple tasks for increasing understanding
4. Allowing students to own the content by giving them the opportunity of producing it themselves
5. Encouraging collaborative learning
6. Teacher should act as a scaffolding for student learning and not a be directive

However, the study also raises some questions. They are:

1. Is role play the only active learning strategy that can be used for answering this question?
2. Will this strategy work even for other subjects?
3. Can this strategy be used with younger students? If so, how effective will it be?
4. How much improvement would a few more trails have resulted to?

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Appendices

Interview Questions- Pre –role play

1. Do you have any problem while answering questions requiring you to develop an alternative method of studying a psychological process? If yes, then what are these problems?
2. Do you have any problem while answering questions requiring you to evaluate a particular core study in terms of strengths and weaknesses or in terms of practical and ethical issues? If yes, then what are these problems?

Interview Questions- Post –role play

1. How was your experience of the role play activity?
2. Was the role play activity helpful in increasing your understanding, clarity and confidence in writing application and evaluation answer? If yes, then state how?

Mark scheme for objective assessment

Application based question

Candidates should describe the who, what, where and how.
Major omissions include the what, where and how. Candidates must describe the behavior measured and how this data is collected. This description must give an indication of where the study was done. In addition, how is the data collected (e.g. via independent observers) and what data is recorded (e.g. what behavior is being measured).
Minor omissions include who. It is possible to achieve 9 marks with a small minor omission.

Alternative study is incomprehensible	0
Alternative study is muddled and impossible to conduct	1-2
Alternative study is muddled but possible	3-4
Alternative study is clear with a few minor omissions	5-6
Alternative study is described with one minor omission and in some detail	7-8
Alternative study is described in sufficient detail to be replicable	9-10

Evaluation based question (CIE Psychology Marking Scheme)

Candidates need to consider a number of points regarding their study. These points can be both positive and/or negative. In order to achieve higher marks the candidate must link their points to their investigation described in part (b).
Candidates must discuss both methodological and ethical points to achieve 7+ marks.

No evaluation.	0
Evaluation is muddled and weak	1-2
Evaluation is simplistic and not specific to the investigation	3-4
Evaluation is simplistic but specific to the investigation (may include general evaluation). May include one detailed point.	5-6
Evaluation is good and specific to the investigation. Two or more points that discuss both methodological and ethical issues	7-8
Evaluation is detailed and directly relevant to the investigation	9-10