PalArch's Journal of Archaeology of Egypt / Egyptology

EFFECT OF ACTIVE LEARNING ON THE LEARNERS' LEARNING ACHIEVEMENT AT ELEMENTARY LEVEL

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Hafiz Sultan Yousaf, Dr. Muhammad HameedNawaz, EFFECT OF ACTIVE LEARNING ON THE LEARNERS' LEARNING ACHIEVEMENT AT ELEMENTARY LEVEL-Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(7), ISSN 1567-214x

Abstract

This study was intended to find out the effect of active learning experiences on students' learning achievement. Quasi-experimental: the nonequivalent group design was used to conduct this study. Male students of 8th class public schools were taken as population for this experimental study. This study was delimited to the students having general science as a compulsory subject. Moreover, the scope of active learning experience was delimited to collaborative learning activity and think-pair-share activity. Two intact groups of 8th class were selected as sample through cluster random sampling technique. One group was taken as control group and the other group was taken as experimental group. Kolb's model of experiential learning was used for the treatment of the experimental group for this study. Pre-test and post-tests were used to find out the effect of active learning and to test the hypotheses of the study. Descriptive statistics: mean and standard deviation and

inferential statistics: t-test was applied to find out the results of the study. It was concluded that there was statistically insignificant difference between the achievement scores of experimental and control groups in pre-test and pre-test and post-test 2 control groups on the basis of their achievement score.

Key Words: Active learning, Learning Achievement, Elementary Learners

Introduction

Effective teaching and learning have many problems which require attention of researchers to carry out research on it (Thompson, Rainwater, &Ricke, 2018). In the traditional method of teaching, teacher speaks most of the time in the class and students do not get chance to practice on what is being taught to them by their teacher. This approach begins with teachers' lectures and then ends with a little practice of students.

The simple definition of active learning is engaging students in meaningful activities that make them think, plan and react on the given presentation. It is required from students that they enhance their knowledge and skills of analyzing, synthesizing and evaluating a particular problem. Depending upon their skills and knowledge, they have to discuss concepts with their classmates through questions or through writing (Malik and Janjua, 2011).

The techniques of active learning focus on the involvement of pupils with the learning resources and material which can include short stories, quick surveys, formative feedback and quizzes, think-pair-share, brainstorming, presentations, cooperative and collaborative learning (Patrick, & Williams, 2009)

The purpose of active learning is to show teachers and students the way to success, but effort needs to be done while identifying, evaluating, tracking and encouraging the development and achievement of students and teachers in institutions. In order to make students more productive, active learning is a type of education which highlights student's learning responsibilities. It is introduced in the Association for the Study of Higher Education (ASHE) report, revealed in vogue in 1990's by its organization (Bonwell&Eison, 1991).

This report altogether stresses upon adopting different methods to improve (Active Learning). The researchers' emphasis on students learning outcome and they claimed that student must be capable of three learning areas as mentioned awareness, expertise and behavior instead just to listen. They say that students should be involved in reading, writing, discussion, problem solving activities or such type of activities which are based on well-read, composed, talked or solved material. They have also drawn illusion to the literature in this regard. The conclusive result of this effort is that students will be able to interpret their own perceptions (Zull, 2012).

Zull (2012) has explained his point of view about education as "lifelong learning built on experience" (p. 14). Similar to Bonwell and Eison, Zull (2012) focused on 'doing' but instead he used another appropriate term in order to give meaning to his ideas and that term is 'action' To make students aware of their own thoughts and processes, Zull has manipulated a term called 'meta cognition' as it is the center point of all learning. According to him, "ultimate outcome of the journey [from brain toward mind] is to understand our own understanding" (Zull, 2012, p. 15). Same is the case with Ambrose., Bridges, DiPietro, Lovett, & Norman, (2010) he has interpreted learning having its main concern with action and experiences. "Learning is a process that leads to change, which occurs as a result of experience and increases the power for better performance and future learning".

Berry (2008) gave a summary of all active learning approaches with the help of four elements (1) critical thinking, (2) individual responsibility for learning, (3) active participation in open-ended activities, (4) sequence of active learning activities by the professor. Millis (2012) stated that all these four key elements can be achieved through cooperative learning. Cooperative learning is something which is based on one's individual learning rather than working in a group. So that, all the students can get equal chances of participation and learning process can become more effective.

Collaborative learning is the most powerful and effective way to learn more material in the class. In this type of learning a task is assigned to a group of 3-6 people and gets to work together. That task can be in the form of answer questions to present in front of the whole class or can be in the form of project. In this process students get to select a leader and have to make notes. So, they can review it whenever they need. Class arrangements should be flexible as it will increase student's participation (McKinney, 2010)

Smith, Sheppard, Johnson, and Johnson (2005) demonstrated that: "keeping the students busy in learning is largely the responsibility of the teacher, who becomes less a sharer of knowledge and more a composer and activator of learning experiences and chances" (p. 2). If we acquire these approaches, they may bring desirable results.

Think-Pair-Share is an activity introduced by McTighe& Lyman (1988). He gave a question to students and they got to analyze, evaluate and synthesize it. Firstly, they were given 30 seconds to think an accurate answer (Think). Secondly, they had to share their ideas with their partners (Pair). Lastly the ideas that they jotted down on answer sheet they have to share that with their whole class during discussion (Share). This activity proved worthwhile and 50 percent students respond actively in classroom as compared to the traditional classroom where hardly one or two students respond to the instructor's questions.

In the previous research, the researcher has turned his main focus to the students that what they taught and what they are supposed to learn rather than the person who is teaching. It works like the first chapter of any new book is always concerned with grabbing student's attention and motivating him to do work.

It is a fact that increment in student's achievement is a result of active learning. Braxton et al. (2000) examined the influence of active learning classroom approaches on student's requirement and their social feelings with the help of Bonwell and Eison's definition specifically, "class discussions, knowledge-level examination questions, group work, and higher-order thinking activities". Faculty should know that how active learning approaches should be introduced in attractive ways because results suggested that active learning causes some students to change their attitudes towards institutions, their social attractions get affected and some students choose to remain in school.

In order to check the impact of active learning on elementary school student's performance Korkmaz (2007) conducted an experiment. Each student from higher to lower level of intelligence was given an assignment. Results showed that experimental group's student performance in science was better than the control group's student. There were also huge differences among the attitudes of both group's students

Research Objectives

Following were the objectives of this study:

- To investigate the effect of active learning on the learners' learning achievement in General Science subject of 8th grade.
- 2. To compare the achievement score of students taught through traditional method and collaborative learning in pre-test and post-test research design.

Hypothesis

The hypothesis of the study were:

 H_{01} : There is no significant difference between the mean score of experimental and control group in the pretest design.

 H_02 : There is no significant difference between the mean score of experimental and control group in the posttest design.

Significance of the Study

This research study is on the comparison of active learning activities and typical instructional method in terms of learning achievements of the students is significant from several perspectives.

According to Kroll and Laboskey (1996), active learning equips students with the right skills which help them to use their knowledge in an effective way and inquire about new ideas. This thing effectively starts the developmental process of students.

If active learning activities have significant effect on students' achievements in the subject of general science, then it would be helpful for teachers to apply active learning activities in current teaching learning process of other subjects at elementary level. Teacher training institutes may also conduct pre-service and in-service trainings to foster teachers' skills accordingly to get the maximum output.

This study proved and recommended that curriculum developers should develop curriculum in which teacher can easily use active learning activities during content delivery because researches show that content delivered through active learning activities develops confident among the students and learning is durable.

Population

The population of this study was 48000 the male students of 8th grade session 2014-2015 at public sector schools of Gujranwala district of Punjab Pakistan. The experimental and control groups were formed. Control group was taught by the traditional method, while experimental group was taught by active learning experiences.

Sample

One boys' school was selected randomly from the list of public sector schools for boys at Gujranwala district. From the selected school, two sections of 8th class were selected by using randomly cluster sampling technique. One class was taken as control group, while the other class was taken as experimental group.

Research Design

The research design of this study is quasi-experimental design: the nonequivalent group design. This research design is encountered most frequently in social sciences where researchers have problem for random sampling for their studies (Strydom, Basson, and Mentz 2012, p. 46; and Pascalis, Petit, Kim & Campbell (2000).

Rousseau (2018) also cared about the knowledge and the process of learning. He is a philosopher whose thinking is regarded as enlightenment in the eighteenth century. He was of the view that education systems should plan their goals in this way that encourage education as "nature" rather than "Art". This characteristic makes students able to develop on their own pace rather than being forced by a teacher (Wokler, 1996). Rousseau pointed out that the education system in his time was boring as it was focused on rote learning where students were not being involved actively in their studies (Marlowe & Page, 2005). He declared that the society of his time was corrupted and it was very important for individuals to become self-reliant because it would help learners not to be guided by corrupted people. He is of the standpoint that every human being is born spiritually and physically incomplete, therefore, it is important for him to grow naturally by passing different organic stages of growth. However, Rousseau's ideas were rejected by many of his counterparts.

Kant (1999) believed that the progress in philosophy is also required, and he rejected the traditional philosophies like Rousseau. He was of the view that it is important for individuals to have experiences. According to him individual who escapes from having an experience does not win significant reward. Kant labelled the significance of leaning with achievement that one can achieve by involving himself in number of experiences (Strawson, 1984).

Data Analysis

Ho1: There is no significant difference between the mean score of experimental and control group in the pretest design.

Table 4.1

Comparison between Pre-test I between Experimental and Control Group

Summary of Post Test

Group	Ν	\overline{X}	SD	Lowest Score	Highest Score	Range	Sig.
Experimental	48	41.02	11.27	19	67	48	.097
Control	36	41.11	7.90	30	60	30	

*P < .05 Level of Significance

Table 4.1 showed that there is no significant difference between the \overline{X} of EG and CG on their scores on pretest (t=.097 > α = 0.05, df= 82). Thus, H₀1 was accepted. Table 4.1 also showed descriptive statistics. The \overline{X} of EG is 41.02 making no significant difference with \overline{X} of CG, i.e. 41.11. However, the SD of CG (7.90) is closer to \overline{X} (41.11) as compared to SD of EG as 11.27 (\overline{X} =41.02). Thus, the data analysis revealed that both groups (EG, CG) were same on their capabilities as analyzed by pretest (Chapter III, Appendix A).

Ho2: There is no significant difference amidmean score of experimental and control group in the posttest design.

Table 4.2 Comparison between Posttest of Experimental and Control Group

Group	Ν	\overline{X}	SD	Lowest Score	Highest Score	Range	Sig
EG	48	51.06	9.46	33	75	42	.01
CG	36	45.33	10.25	27	70	43	

Summary of Post Test

*P < .05 Level of Significance

Table 4.2 showed that there is a significant difference between the $\overline{X_s}$ of EG and CG on their scores on posttest (t= .01 < α = 0.05, df= 82). Thus, the H₀2 was rejected. Table 4.2 also showed descriptive statistics that \overline{X} of EG is 51.06, highest to \overline{X} = 45.33 of CG. The SD of EG is relatively lower (9.46) to CG (10.25) revealed that means is EG are higher to \overline{X} of CG.

Discussion

Suzuki, Rubin, Lidman, Aldering, Amanullah, Barbary, & Dawson (2012)stated about the importantpart of head teacher in effective integration of collaborative teaching learning activities. The findings of this study also agree with his findings.Becker& Tomes (1986)specified the need of proper time for the best use of collaborative teaching activities. The findings of this study also agree with his findings.

According to Wellman Cross & Watson (2001), proper planning is necessary to get maximum results in the use of collaborative teaching learning activities. The findings of this study also agree with his findings.

Conclusions

The following were conclusions of the study:

1. It was concluded on the basis of findings of the study that there was statistically insignificant difference between the achievement scores of experimental and control groups in pre-test. Hence, H_01 was accepted that there is no significant difference between the achievement scores of both groups in their pre-test.

- 2. Findings revealed that there is significant difference between the attainment scores of experimental and control groups in their post-tests. Henceforth, H₀2 was rejected because there is difference amid the attainment scores of both groups. Learners of experimental group performed better than the students of control group.
- 3. Findings of data revealed that a statistically major difference between attainment scores of experimental and control groups in pre-test II. Henceforth, H_03 was rejected because there was found significant difference between the attainments of students in both the groups. The respondents in experimental group performed better than control group.
- 4. Findings of the study revealed that there exists a statistically significant difference between pre-test and post-test experimental groups on the basis of their achievement score on the scale of test. Hence, H₀4 was rejected because there was found significant difference between the achievements of students in pre-test and post-test of experimental group. The respondents in post-test experimental group performed better than that of pre-test experimental group as conducted by EG.
- 5. A statistically significant difference between pre-test and post test control groups on the basis of their achievement score was found. Hence, H₀5 was rejected because there was found significant difference between the achievements of pre-test and post-test of control group. The respondents in post-test control group performed better than that of pre-test control group as conducted by CG.

RECOMMENDATIONS

On the bases of conclusions drawn through this study following recommendations were presented:

- 1. It was concluded that active learning has its significant effect on students' achievement. So, on the base of this conclusion it was recommended that teachers should be equipped with more facilities in schools to arrange activities that promote active learning for better outcomes.
- 2. As active learning has positive effect on students' achievement so activities that promote active learning may be included in the learning outcomes of the curriculum. So that teachers must focus on these activities.
- 3. Teachers should be trained to adopt activities related to active learning and teachers should also be aware of active learning during induction trainings as well refresher courses. So that teachers may use these activities adequately.
- 4. Proper funding should be provided to the schools to furnish and equipped the classrooms for smooth accomplishment of active learning process.
- 5. This study was done to find out the effect of active learning on learners' achievement in Science. It is suggested that similar studies may be applied to other subjects to find out the effect of active learning.

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