

AN EXPERIMENTAL STUDY ON THE EFFECT OF ACTIVITY-BASED TEACHING ON FEMALE STUDENTS' ACADEMIC ACHIEVEMENT IN PAKISTAN STUDIES OF PUBLIC SECTOR COLLEGE OF LAHORE

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Abstract

Activity-based teaching promotes learner responsibility, collaboration, and social skills. This experimental study examined its effect on Grade XII students' academic achievement in Pakistan Studies at a public girls' college in Lahore, Pakistan. Using a quasi-experimental pre-test and post-test design, 70 students were divided into experimental and control groups. Over 16 weeks, the experimental group was taught through activities such as debates, summary writing, question-answer sessions, matching exercises, completion exercises, and scrabble, while the control group received traditional instruction. Data were collected through validated and reliable achievement tests and analyzed using descriptive statistics, Shapiro-Wilk normality testing, and Cohen's d. Results showed that activity-based teaching significantly improved achievement in Pakistan Studies subject, with a stronger effect in English. The study recommends incorporating activity-based methods to enhance students' interest and academic performance.

Introduction

Teaching is a blended activity which specially depends on the cooperative participation of both teacher and students. Various rules based on scientific processes and specific knowledge are applied to develop a unique environment that stimulates students' learning and provoke them to think sensibly for boosting up their knowledge. In the words of Curzon (2004), teaching ensures learning for long lasting in the certain place and certain time. A competent teacher polishes their students' intellectual and thinking ability by clarified their core-concepts in certain academic areas by using various learning materials. A teacher is considered a "good teacher" when he or she facilitates their students with a sound knowledge and detailed discussions so that they can apply acquired knowledge practically and develop concepts about certain topics in the relevant field (McGrath & MacEwan, 2011).

Activity based teaching helps students to learn by doing. This means that course of studies and teaching approach, used in imparting it, should mainly focus on concept-building and understanding of its certain aspects rather than that of memorization. Activity based teaching provides ample opportunities for in-depth study and helps students build a solid base of knowledge and also develop them conceptually. Activity based teaching aims to improve students' skills and talents so that they could independently apply the acquired knowledge for social and professional dispensation. (Brookhart & Durkin, 2003). Activity based teaching prompts the students to think more appropriately instead of merely resorting themselves to rote-learning. In this perspective, the process of learning is mainly stressed upon which usually leads to a refined skill which is chiefly described in the form of competencies. This competency is, in fact, a result of achievement record that is truly based on numerous evaluative methods. (Kahl, 2006). Activity-based learning, therefore, directly leads the students directly to a unique experience of learning. (Hussain, Anwar, & Majoka, 2011). It clearly indicates how students are involved in different activities that prove to be a suitable way of understanding whether students were rightly responding to the activity-based teaching. It also ensures students's active engagement in learning. Activity-based method of teaching is one of the most appealing techniques which poses many challenges to the teachers as they have to adjust their acquired

skills accordingly. (Ahlfeldt, Mehta & Sellnow, 2005). Ahmed (2012), Akhalq, Chishti, Iqbal (2016), Akhtar and Saeed (2017) reported activity-based teaching method to be applied in the science subjects in Pakistani context. The authors also reported that activity-based teaching methods had no proper implementation due to many reasons such as lack of qualified teachers, lack of facilities and lack of proper teacher training programmes.

It is not just achievement in terms of exam results and marks but also the activity-based teaching provides a chance to understand the education by experience. Students see the things by their eyes, listen to the voices and observe it. It creates more opportunities to remember and understand than conventional methods. Indoor and outdoor activities motivate students to learn things in different manners. It also creates more capabilities in the learners and increases their potential of competency, attention level and ways of thinking (Annu & Sunita, 2015). The purpose of such academic activities is to make the students learn new things in an innovative environment. Similarly, the authors explained such learning techniques by giving them various names such as “educational games”, “brainstorming”, “problem-solving”, “field work”, “concept mapping” and many more. They all are used in different classes based on their age groups. These activities can be both indoor and outdoor. (Hao, 2017; Jaiswal, 2016; Santos, 2013). Students can learn differently by practical doing. More than mechanical activity is involved in doing the things by themselves. In the words of Skola, Tossavainen, Bessems, majorita and Sormunen (2018) emotional intelligence is involved that promotes and channelized with the help of learning by doing. Quizzes and assignments are preferable classroom activities which enable students to ask questions and clear their understandings about the relevant topics and complex ideas. The organization and structure of the learning objectives are matched with the learning abilities of the students in the traditional classroom settings (Ahlfeldt, Mehta & Sellnow, 2005; Jaiswal, 2016).

Problem solving techniques and their variations seem to be the existing culture leading towards the application of ABL approach. These techniques are also considered as the activity based learning because they are techniques teachers use to teach the students how to identify the problems and what exactly they have to do as there are five important processes of the problem solving technique itself (Cornish & Ross, 2004). Another effective method prevalent in the existing system or which can be recommended for future use in favor of the activity based learning is debates and discussion because the discussions can generate the major ideas about the learning as well it is also considered as the most important type of the effective based learning (Adam, Theodore, Goldenberg, McLaren, & KcKeever, 2010).

Teamwork is another effective strategy to implement learning based activity in the class. Teamwork cannot be successful without effective communication processes as there are several structures of the communication, which should have to be followed by the teams so that the effective workflow of execution can be followed. (Adam, et al., 2010). The authors explained such learning techniques by giving them various names such as “educational games”, “brainstorming”, “problem-solving”, “field work”, “concept mapping” and many more. They all are used in different classes based on their age groups. These activities can be indoor and outdoor both (Hao, 2017; Jaiswal, 2016; Santos, 2013). Academic achievement or (academic) performance refers to students’ attainment of their short or long-term educational goals. Use of exam results, GPA, and the CGPA in case of university level achievement are common to measure students’ academic achievement (Chappuis, 2005; Cox, 2007; WEAC, 2005). Academic achievement is directly linked with learning content of that subject. It is academic achievement that defines students’ performance in any subject. It also places learners at different levels of learning. The more a learner learns text the more he/she will yield academic achievement (Akhtar, Iqbal, & Tatlah, 2017).

Objectives of the Study

1. Find out the effect of activity based teaching on the grade XII female students' academic achievement in the subject of Pakistan Studies.
2. Find out difference between the grade XII female students' academic achievement in the subject of Pakistan Studies.

Hypotheses of the Study

H₀₁: There is no statistical significant mean score difference between experimental and control groups' academic achievement in the subject of Pakistan Studies at grade XII.

H₀₂: There is no statistical significant mean score difference between the experimental and control groups' academic achievement in the subject of Pakistan Studies at grade XII.

Research Methodology

Underpinning a positivist paradigm, the current experimental study was quantitative in nature. Quasi experimental non-equivalent control group design was selected for the study. Pre-test and post-test based method of assessment was applied on both experimental and control groups. Then the scores, rendered from both pre-test and post-test assessment, were compared in order to determine the effect of activity based teaching at grade XII so that students' academic achievement in the subject of Pakistan Studies could be checked in true letter and spirit. A unique sampling technique, comprising multiple stages, was utilized to choose the sample for the current study. At the initial stage, a public-sector Degree College for Women from district Lahore was selected conveniently as cluster of the study. At the second stage, two intact groups of grade XII students were selected randomly. Both groups had equal number of students i.e. 35. To ensure equality of sample, both groups of same discipline (pre-medical and pre-engineering) were selected. It was because colleges enroll students on the same criteria/merit for a discipline. One group was selected as experimental and second as control by tossing a coin.

Achievement Test of Pakistan Studies (ATPKS) was the instrument of the study. ATPK had 20 MCQs and 10 supply-type short answer questions. Table of specification for ATPKS reflects the coverage of all the cognitive domains of Bloom's Taxonomy in order to attain educational objectives as well as student learning outcomes. National curriculum for the subject of Pakistan Studies was reviewed at grade XII. Content for ATPKS from Pakistan Studies textbook for grade XII published by Punjab Curriculum and Textbook Board Lahore (PCTB) (Punjab Text Book Board, 2018). The same content was intervened in the experimental and control groups. Validity of the test instrument was ensured by the experts of the relevant field in the study whereas the reliability of the instrument was ensured by piloting the test and test scores were measured at .80 was good for the accuracy of the measurement.

Intervention

Experimental group was taught Pakistan Studies subject with the help of activates and control group was taught through lecture method, and textbook reading method. This intervention period was of 16 weeks. Lessons were planned as per format. Intervention content was selected from textbook of Pakistan Studies for grade XII, published by Punjab Curriculum and Textbook Board Lahore (PCTB). Both control and experimental groups were taught by the researcher herself. As an experienced teacher, the researcher controlled experimental effect during the intervention. The activities selected for the study include: Debates, discussion, projects, demonstration, and scrabble for the subject of Pakistan Studies. Duration of each lesson was of 40 minutes because college timetable was of 45 minutes period. Five minutes were for roll- call. Activities were planned in the lessons and the activities were content oriented. Four or five activities were planned to cover one topic from the text book of Pakistan Studies according to the nature of the text.

Data Analysis

Data analysis was divided into two sections. First section is about the normal distribution of data. Section two mainly puts forward the results from inferential statistics on the subject of Pakistan Studies.

Table 1

Test of Normality Pakistan Studies Subject

Subject	Group Labels	Mean	SD	Df	Skewness	Shapiro-Wilk	Sig.value
Pakistan Studies	Ex.Pre-Test	15.37	2.12	35	-.55	.958	.193
	Cont. Pre-Test	17.49	2.29	35	.24	.960	.236
	Ex. Post-Test	32.71	2.50	35	-.23	.984	.884
	Cont. Post-Test	20.34	1.90	35	.79	.920	.014

Table 1 contains statistical values gained from test of normality for the subject of Pakistan Studies. A Shapiro-Wilk test showed that both experimental and control groups were normally distributed in pre-test scores as experimental $W(35) = 0.958$, $p = 0.193$ and control group $W(35) = 0.960$, $p = 0.236$. Shapiro-Wilk test reflects normal distribution of both experimental and control groups in post test as experimental $W(35) = 0.984$, $p = 0.884$ and control group $W(35) = 0.920$, $p = 0.014$.

Figure 1 reflects the scores of experimental group obtained from the normal distribution of pre-test in the subject of Pakistan Studies. Histogram shows the data that are statistically normally distributed that meet the assumptions of t-test statistics.

Figure 1

Pre-test Histogram for Experimental Group in the Subject of Pakistan Studies

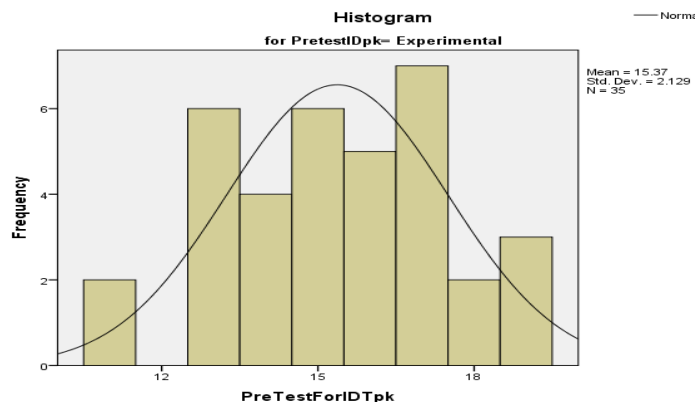


Figure 2 reflects data distribution of control group pre-test scores for Pakistan Studies subject. It shows that data are statistically normally distributed and it meets the assumptions of t-test statistics

Figure 2

Pre-test Histogram for Control Group in the Subject of Pakistan Studies

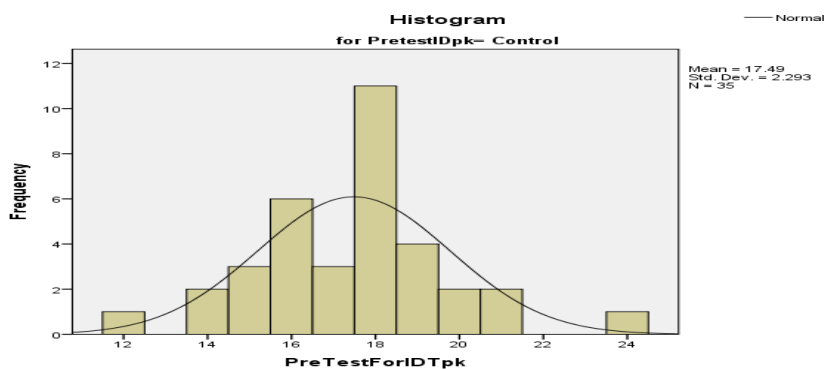


Figure 3 reflects data distribution of experimental group post-test scores for Pakistan Studies subject. It shows that data are statistically normally distributed and it meets the assumptions of t-test statistics.

Figure 3

Post-test Histogram for Experimental Group in the Subject of Pakistan Studies

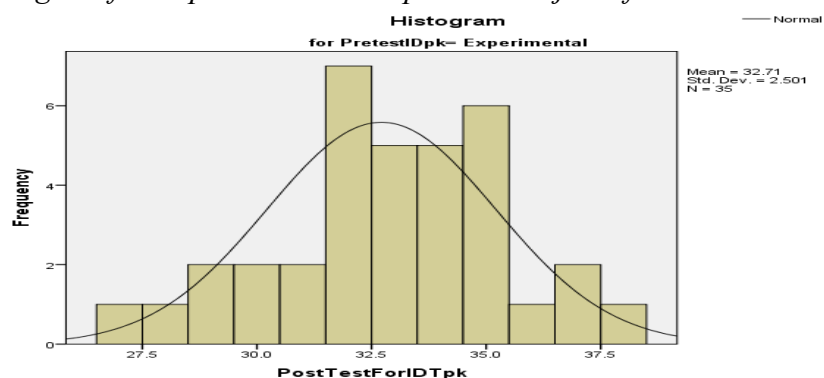


Figure 4 reflects data distribution of control group post-test scores for Pakistan Studies subject. It shows that data are statistically normally distributed and it meets the assumptions of t-test statistics.

Figure 4

Post-test Histogram for Control Group in the Subject of Pakistan Studies

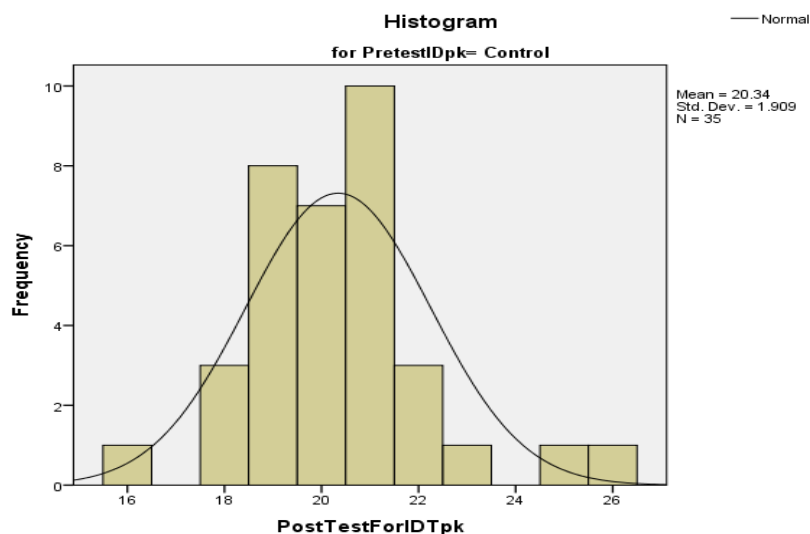


TABLE 2

COMPARATIVE MEAN ANALYSIS FOR PRE-TESTS OF PAK STUDIES SUBJECTS

Variable	Pre-Test	N	Mean	SD
Pak Studies	Exp-Group	35	15.37	2.12
	Control Group	35	17.48	2.29

Table 2 contains pre-tests descriptive results of Pak-studies' experimental and control groups. The purpose was to know baseline performance before the start of intervention. Firstly, performance of experimental group (M=15.37) and control group (M=17.48) was quite similar in Pak-studies subject. Therefore, it is concluded that groups in Pak-studies subjects seem to be equivalent at baseline performance prior to start of intervention.

Hypothesis 1

H₀₁: There is no statistical significant mean score difference between experimental and control groups' academic achievement in the subject of Pakistan Studies at grade XII.

Table 3

Test Results for Independent Sample t-test for Pakistan Studies Subject

Subject	Groups	Mean	SD	t-value	df	Sig.(2-tailed)	d
Pak-Studies	Experimental Post-Test	32.71	2.50	23.26	68	.000	.5
	Control PostTest	20.34	1.90				

Table 3 indicates a sound comparison in between the experimental and the control groups on the basis of post-test scores on Pakistan Studies subject. It shows that experimental group showed improved scores (mean = 32.71, SD = 2.50) than control group (mean = 20.34, SD = 1.90) mean difference remained 12.37 conditions $t(68)$, 23.26, $p < 0.001$. This improved performance of experimental group is also supported with Cohens' practical significance d value .5 which shows moderate effect of activity based teaching in the subject of Pakistan Studies at grade XII. So, statistical values obtained from gained sample t-test conducted with independent group was unable to endorse the zero (null) hypothesis "H₀₁: There is no statistical significant mean score difference between experimental and control groups' academic achievement in the subject of Pakistan Studies at grade XII" and was compelled to accept an alternate hypothesis "H_A: There is statistical significant mean score difference between experimental and control groups' academic achievement in the subject of Pakistan Studies at grade XII".

Table 4

INDEPENDENT SAMPLE T-TEST COMPARING GAIN SCORE OF EXPERIMENTAL AND CONTROL GROUP IN PAK-STUDIES SUBJECT

Variable	Mean	SD	t-value	Df	Sig.(2-tailed)
Experimental Group	17.34	3.01	21.29	68	.000
Contrp Group	12.85	2.66			

Table 4 shows statistics for independent sample test comparing mean gain score after intervention between experimental and control group in Pak-studies subject. Table shows that

experimental group showed improved academic achievement of Pakistan Studies subject in post-test (mean = 17.34 SD = 3.01) than pre-test (mean = 15.37, SD = 2.12) mean difference remained .68. Statistical results show that activity based teaching has statistically significant effect on students' Pakistan Studies academic achievement t value 21.29 and $p < 0.00$.

Conversely, control group came up with far much better performance in post-test scores (mean = 2.85, SD = 2.66) than pre-test (mean = 17.49, SD = 2.29) mean difference remained 2.85. Statistical values reveal that control group also showed better performance but it is less than experimental group.

H₀₂: This hypothesis ends up with insignificant means score difference with little or no statistical value found in between the experimental and control groups' level of academic accomplishment or success (achievement) in Pakistan Studies subject at grade XII.

Findings

The analysis discovered positive results as the utilization of activity based method left unrubbed signs on the brains of grade XII students' academic achievement in the subject of Pakistan Studies. Experimental group performed better in post-test than pre-test. Due to the involvement of activities, the performance was improved. The statistical results showed statistically significant effect of activities based teaching on grade XII students' academic achievement in the subject of Pakistan Studies. Experimental group showed statistically improved academic achievement in post-test scores. Activities selected for teaching Pakistan Studies subject were debates, summary writing, question answering, matching exercises, completion exercises, and scrabble. Data revealed that lecture method, grammar translation method, and textbook reading methods were not effective as activities for teaching Pakistan Studies subject at grade XII. Obstinate, the control group of Pakistan Studies subject was deficient in showing statistically better performance experimental group, yet, also performed bad in post-test scores. The present study showed that whether the subject is taught in local or foreign language, activity-based teaching works well. We see that in Pakistan, the subject of Pakistan Studies is taught in the national language Urdu. According to Centre for Education and Innovation (2015), one of the major characteristics of this modern method of teaching i.e. Activity-Based teaching and Learning (ABL), solely based on certain activities purposely designed for better learning of students. Akhlaq, Chishti, and Iqbal (2016) and Awasthi (2014) supported the idea of activity based teaching at college level. They have recommended many activities for teaching of various subjects and the sum of those activities is to organize debate competitions, engaging students in writing summaries, conducting question-answer sessions, doing matching exercises, completion exercises and scrabble. As this new method is innovative so is its impact on the young minds as they begin to think differently and are ready to participate with greater interest and keenness. (Akhtar, Iqbal and Tatlah, 2017).

Conclusion

The study concluded on the basis of analysis and results that the benefits and efficacy of activity-based teaching cannot be overlooked. By employing experimental investigation, the study limited its findings to Pakistan Studies subject which showed commendable performance of the students who were taught by activity method than those who were not. Regardless of the medium of instruction either English or Urdu or any other regional language in which a subject is taught, activity based teaching seems to be the best approach for teaching English and Pakistan Studies subjects at grade XII. Teachers, who are concerned with language teaching, can focus more on activity based teaching if they want to be more committed and dedicated to their profession. Activity based teaching method significantly contributes to students' learning. Pakistan study teachers are recommended to teach Pakistan Studies subject at grade XII through activities, Debates, discussion, projects, demonstration and scrabble. This method of teaching may improve students' academic achievement in the subject of Pakistan studies.

College and Higher Secondary School principals are also recommended to make it possible for teachers to teach Pakistan Studies subject with the help of activities.

References

- Adams, A., Theodore, D., Goldenberg, E., McLaren, C., & McKeever, P. (2010). Kids in the atrium: Comparing architectural intentions and children's experiences in a pediatric hospital lobby. *Social Science & Medicine*, 70(5), 658-667.
- Ahlfeldt, S., Mehta, S., & Sellnow, T. (2005). Measurement and analysis of student engagement in university classes where varying levels of PBL methods of instruction are in use. *Higher Education Research and Development*, 24(1), 5–20.
- Akhalq, M., Chishti, S., & Iqbal, M. (2016). Activity based teaching and learning through mentoring in Punjab province of Pakistan: An analysis. *Mediterranean Journal of Social Sciences*, 7(1 S1), 434.
- Akhalq, M., Chishti, S., & Iqbal, M. (2016). Activity based teaching and learning through mentoring in Punjab province of Pakistan: An analysis. *Mediterranean Journal of Social Sciences*, 7(1 S1), 434. Retrieved from <https://www.mcser.org/journal/index.php/mjss/article/view/8770/8427>
- Akhtar, N. S., Iqbal, M., & Tatlah, I. H. (2017). Relationship between intrinsic motivation and students' academic achievement: A secondary level evidence. *Bulletin of Education and Researcher*, 39(2), 19-29.
- Akhtar, M., & Saeed, M. (2017). Applying activity based learning (ABL) in improving quality of teaching at secondary schools. *Pakistan Journal of Educational Research and Evaluation (PJERE)*, 2(2), 37-47
- Annu, S., & Sunita, M. (2015). *Extra-Curricular activities and students' performance in secondary school of government and private schools*: <https://www.worldwidejournals.com/global-journal-for-research-analysis-GJRA/recentissuespdf/2014/August/August2014140810507423.pdf>
- Awasthi, D. (2014). *Activity-based learning in secondary school geography lessons in Turkey: A Study from Geography teachers' perspective*. Ankara University Press.
- Brookhart, S., & Durkin, D. (2003). Classroom assessment, student motivation, and achievement in high school social studies classes. *Applied Measurement in Education*, 16(1), 27-54.
- Chappuis, J. (2005). Helping students understand assessment. *Educational Leadership*, 63(3), 39-43.
- Cornish, U., & Ross, F. (2004). *Social skills training for adolescents with general moderate learning difficulties*. Jessica Kingsley Publishers.
- Cox, J. (2007). *Classroom management for an effective learning environment*. <http://www.teachhub.com/classroom-management-effective-learning-environment>
- Curzon, L. B. (2004). *Teaching in further education* (6thed.). Bloomsbury Academic Publishing.
- Hussain, S., Anwar, S., & Majoka, M. I. (2011). Effect of peer group activity-based learning on students: Academic achievement in physics at secondary level. *International Journal of Academic Research*, 3(1), 940-944.
- Hao, Y. (2017). EFL Teaching Methods. *Journal of Language Teaching And Research*, 8(4), 742-749.
- Jaiswal, D. (2016). *Ideas for effective teaching of history: The progressive teacher*. Retrieved from <http://www.progressiveteacher.in/ideas-for-effective-teaching-of-history/>