



ACTIVITY BASED LEARNING: ELIMINATE ROTE FOR ACADEMIC GROWTH

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ABSTRACT

A learner's role today has undergone a mega metamorphosis, making a student evolve as an active participant in the learning process vis-à-vis a passive recipient of knowledge. The attention span of children is limited, leading to the increased incidence of indiscipline in the classroom. An efficient teacher needs to resort to a plethora of teaching techniques and activities in order to sustain the interest of the learner and achieve the desired learning outcomes. Classrooms must undergo the much needed transition from 'rote learning clubs' to 'activity hubs' for education to find its true meaning and purpose. It is time to take classroom teaching beyond the boundaries of 'boards and boredom'. Learning by doing coupled with a child-centric approach are the pillars on which activity based learning stands.

This research endeavor attempted to assess the effectiveness of activity based learning in enhancing the academic achievement of students in different subjects of the curriculum. The sample comprised of 492 students of the secondary section of a private-aided school in Mumbai, affiliated to the S.S.C Board of Education. An achievement test was administered to the subjects before and after the topic was taught using instructional modules comprising of activities and co-operative learning strategies. Comparison of the pre-test and post-test scores indicated a significant difference in the performance of the students, which could be advocated to the activity based approach. In the light of this finding, the paper proposes certain guidelines for constructive use of activity based learning by a teacher in the classroom.

Key words: Activity Based Learning, Achievement, Instructional Module

Introduction

The merits of activity based learning can best be portrayed in the words “Eliminate rote for academic growth”. Activity-based learning (ABL) as defined by Prince (2004) is “a learning method in which students are engaged in the learning processes”. Activity method is a technique adopted by a teacher to emphasize his or her method of teaching through activity in which the students participate rigorously and bring about efficient learning experiences. It is a child-centered approach. Learning by doing is the main focus in this method. The idea of activity-based learning is rooted in the common notion that children are active learners rather than passive recipients of information. If they are provided the opportunity to explore on their own, then the learning becomes joyful and long-lasting. It is a form of cooperative learning where learners not only learn through their own experiences but also through experiences of other members of their peer group. The key feature of the Activity Based Learning (ABL) method is that it uses child-friendly educational aids to foster self-learning and allows a child to study according to his or her aptitude and skill. ABL serves as one model of child-centered, child-friendly education, which is the mandate of the Right of Children to Free and Compulsory Education Act (RTE) Act in India. The types of activities could be exploratory (gathering knowledge), constructive (creative output) or expressional (presentations).

Learning activities if based on ‘real life experience’ help learners to transform knowledge or information into their personal knowledge which they can apply in different situations (Edward, 2001). Harfield, Davies, Hede, Panko and Kenley (2007) say that the active learning method differs from the traditional method of teaching on two grounds; firstly, the active role of students and secondly, the collaboration among them. Hake (1998) argues that students’ motivation by engaging them in interactive- activities is an effective and useful method for teaching complex concepts. He highlights the importance of different activities related to the concepts being presented.

Activity-based learning (ABL) theory is basically a “constructivist” learning theory (Stöbblein 2009). According to the constructivist view of learning, each person constructs their own knowledge and learning process based on their previous experience. This theory asserts that learning takes place when the psychological environment of an individual interacts with a

particular structure. Thus, it becomes imperative that for construction students need a variety of activities in an active classroom (Abdelhamid, 2003). Traditional teaching methods are not suitable for tactile learning because tactile learning needs direct experience and involves manipulation of materials (Kolb, 1984). According to constructivism, teachers cannot transfer their knowledge to the students (Domin, 2007). Students' motivation is high if the activities conducted are personally relevant to them (Hug, Krajcik, and Marx 2005,). There is research evidence which shows that students will retain limited knowledge if they are involved passively in the teaching- learning process (McKeachie, 1998). Teo and Wong (2000), view that traditional teaching approaches do not encourage learners to associate with previously acquired knowledge. On the other hand, Boud and Feletti (1999) remarked that activity-based learning encourages students to “learn how to learn” through different activities and real-life problems.

This paper is broadly divided into two sections. The first comprises of a research endeavour to assess the difference in achievement test scores of the students before and after administration of the instructional modules. In the present research, achievement denotes the accomplishment of the student in subjects of the curriculum, namely, English, History, Mathematics and Science in terms of the number of marks scored by him/her in a written test of 15 marks. The test contains questions to assess content knowledge as well as application ability. Each instructional module comprises of sessions of half hour duration and includes an array of co-operative learning strategies as well as diverse activities conducted to clarify the topic covered and enhance mastery learning of the concept.

In the light of the findings, certain guidelines and constructive suggestions have then been put forth in a bid to enhance the effectiveness of the activity-based approach in the teaching-learning process. Such an endeavor could well provide teachers with valuable inputs to usher in a dynamic change in the existing perception of holistic education.

Subjects and Methods

Subjects: The present investigation is an experimental research. The sample comprised of 492 students of the secondary section (standards V to IX) of a private-aided school in Mumbai, affiliated to the S.S.C Board of Education selected by the convenience sampling technique.

Methods: The instructional modules comprised of 4 sessions, each of half hour duration (one teaching period). Each session was based on a topic/concept which students commonly find

difficult to understand in the different subjects of the curriculum, namely, English, History, Mathematics and Science. An achievement test of 15 marks was administered at the start to each student on the topics of the four instructional modules to assess their academic proficiency in the same. Then the four modules on these same topics were conducted by the trainee for the students using different co-operative learning activities ranging from numbered heads together, think-pair-share, round robin brainstorming to tea party as well as innovative strategies and diverse activities like composing jingles, crosswords, jigsaws, word-searches, role-plays and other presentations. At the end of these four sessions an achievement test of 15 marks and similar difficulty level as the pre-test was conducted based on the concepts taught. The difference in achievement of students resulting from the instructional modules was assessed using the Pre-test Post-test design.

Statistical Methods: The scores were tabulated and then analyzed using descriptive and inferential analysis. Descriptive analysis dealt with the description of the magnitude of the variables included in the study to show the extent of achievement before and after the administration of the instructional modules. The values of the same are depicted in Table 1. Inferential statistics was carried out using the Student’s t-test to compute the differences in the pre-test and post-test achievement scores. Table 2 shows the data summary of the same.

Results

Table 1 shows the magnitude of achievement of the total number of students before and after administration of the instructional modules. The findings indicate that for both domains tested i.e. knowledge and application, the pre-test magnitude of achievement was moderate, while the post-test value was substantial.

Table 1: Magnitude of the Pre-Test and Post-Test Achievement Scores

DOMAIN	PHASE	MEAN	% MEAN	MAGNITUDE
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KNOWLEDGE	PRE-TEST	7.66	51.07	MODERATE
	POST-TEST	11.18	74.53	SUBSTANTIAL
APPLICATION	PRE-TEST	7.83	52.2	MODERATE
	POST-TEST	11.57	77.13	SUBSTANTIAL

Table 2: Data summary of Achievement Scores in the Different Domains

Domain	Phase	N	Mean	SD	t-ratio	Level of significance
Knowledge	Pre-test	492	7.66	3.58	4.62	0.01
	Post-test	492	11.18	3.39		
Application	Pre-test	492	7.83	3.43	6.70	0.01
	Post-test	492	11.57	2.89		

The tabulated values for 't' are as follows (Garett, 1985):

for $df = 490$, t at 0.05 level = 1.96

Similarly, for $df = 490$, t at 0.01 level = 2.59

Thus, 't' is significant for achievement scores in both the domains at 0.01 level. The null hypothesis is therefore rejected. Further, it must be noted that the mean scores of achievement are higher in the post-test than in the pre-test and the t-ratio is higher in the domain of application as compared to that of knowledge.

Discussion

An analysis of the results pertaining to the null hypothesis, indicate that there is a significant difference in the pre-test and post-test achievement scores in both the tested domains. The higher academic achievement of the students on completion of the instructional modules indicates that the activity based learning approach has contributed significantly to their understanding of the topic dealt with and resulted in mastery learning of the concept. Previous research studies have

proved that there are many reasons for activity based learning leading to better outcomes. Effectiveness of ABL to facilitate self-directed learning and problem-solving skills has been well documented in higher education and K–12 education settings (Hmelo-Silver, 2004). Norman and Schmidt (1992) found that on long term retention assessments, students of ABL performed better than traditional students.

Gallagher et al. (1992) noted remarkable improvement in the results of ABL students than their counterparts and viewed that ABL is an effective method of developing problem-solving processes and skills. Hung et al (2008) mentioned that ABL has a positive impact on students' abilities to apply basic science knowledge and transfer problem-solving skills in 'real-world professional or personal situations'. Shepherd (1998) reported the same results. Dean (1999) proposed that Activity based learning was known to enhance students' confidence in judging alternatives for solving problems. The study by Lieux (2001) indicated that ABL aided the development of thinking and problem-solving skills. Schmidt et al (2006) suggested that this approach helped to improve interpersonal and professional skills as well as advance self-directed learning and higher level thinking. Choo (2007) noted the positive impact of the ABL approach on the students as well as teachers in a vocational institution.

The calculated t-value for the domain of application (6.70) is greater than that for the domain of knowledge (4.62). Hence, it indicates that the activity-based teaching method is more effective than the traditional method of teaching to develop higher order thinking skills such as application. These results are supported by the findings of Zumbach et al (2004) who proposed that ABL makes a more significant contribution to students' higher order thought processes such as application, analysis and synthesis. In the present study, the higher scores in the application domain can be attributed to the fact that the achievement test administered on completion of the instructional modules provided the students with opportunities to assess their ability to apply the knowledge gained in new and familiar situations. This kind of an evaluation required students to think out of the box and extend the information they had mastered through the activity based approach to new areas relating to real life situations. The distinct advantage of the instructional modules was that they used different media and catered to the different learning styles of students. Learners were motivated to master concepts effortlessly in keeping with their own pace and skills. The potential advantages of group dynamics namely, synergy and sharing of

information surfaced strongly through the group learning activities which comprised the instructional modules. These findings are corroborated by the fact that students who explain to one another strengthen their own learning. When students need to organize their thoughts in order to explain them to teammates, they must engage in thinking that builds on other ideas (cognitive elaboration) which greatly enhances their own understanding. There is research evidence which shows that students will retain limited knowledge if they are involved passively in the teaching- learning process (McKeachie, 1998). As quoted by Hull (1999), “The majority of students in our schools are unable to make connections between what they are learning and how that knowledge will be used”. One of the reasons is that we do not contextualize our teaching/learning process. In this respect, ABL is helpful to contextualize the students learning.

In conclusion, the following guidelines have been proposed to enhance the effectiveness of the activity based learning approach in the classroom:

1. Regular and constructive collaborative study groups can assist teachers to achieve mastery learning outcomes in students, aid in exam preparation and better performance on tests.
2. The school curriculum and syllabus should be re-designed so as to provide enough time and space for activity based learning.
3. Pre-service and in-service teacher training programmes should orient trainees to the theoretical and practical knowledge required for implementing activity based learning successfully in the classroom.
4. The government should provide enough funds to schools for arranging material aids and kits to promote activity based learning.
5. Teachers must comprehend that one size never fits all (Arnita 2006). Learners’ discoveries, actions and reactions are different. Each learner has a special hidden talent with different learning styles. In order to teach effectively, instructors must study and evaluate their learners first.
6. Teachers must arrange their students in a small and manageable group to improve their learning (Meixia Ding, Xiaobao Li, Diana Piccola, Gerald Kulm 2007).
7. Instructors should not forget to have regular class meetings to identify the problems facing teachers and students alike. Students’ feedbacks are extremely crucial in a meaningful learning atmosphere.

Above all, teachers need to take the giant leap to sacrifice quantity for quality when it comes to the sensitive issue of student learning.

Conclusion

Activity based learning serves to prepare students for the school of life. In this teaching / learning environment, the teacher is a facilitator, motivator, guide and a coach rather than a sage on the stage. As rightly said by Confucius, “Tell me, and I will forget, show me, and I may remember, involve me, and I will understand.” It is only when students talk about what they are learning, write about it, relate it to their past experiences, and apply it to their daily lives, that they will make what they learn an integral part of themselves.

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