

Active Lecturing: An Effective Approach for Large Classes

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Abstract—The study investigates the effect of active learning strategies on the learning *motivation*, communication skills and the academic achievement of the graduate learners when blended with the traditional lecture method of teaching. Variables were studied via one group pre-test post-test design on 54 first semester Masters of Education students studying at International Islamic University, Pakistan. The group was taught through traditional lecture method till the mid-term examination. After mid-term examination the teaching method was altered by using Active-learning model in integration with Lecturing by the researcher over a period of till terminal examination. To assess the effects of the active learning strategies on students' learning motivation, a standard questionnaire was used, whereas a questionnaire was constructed to assess the communication skills and the academic achievement variable was measured through the comparison of mid-term and terminal results. Major findings through t-test indicated that the learners were more motivated, their communication skills were improved and academic achievement rated significantly high through active learning.

Key words: *Active Learning; Learning Motivation; Communication Skills; Academic Achievement.*

I. INTRODUCTION

A. Introduction

Research consistently has shown that traditional lecture methods, in which teachers talk and students listen, dominate our classrooms. Institutions of higher education in Pakistan are also engaged with this dilemma. With the increase in the number of students in the last 10 years: 579,179 students in 2001, to 741092 by the end of the year 2009 [1] at higher education level, the need to look at the quality of education has emerged as a major challenge for Higher Education Commission, Pakistan. Innovative pedagogies have attempted to encourage teachers to teach in a more meaningful manner to achieve the maximum optimal educational objectives. Inquisitive and creative teachers intend to opt modern pedagogic techniques to develop a better comprehension of the contents of study but the obstacles and barriers to instructional change resist them to use interactive instructional techniques and have to rely on lecturing. Reference [2] suggest that “the exclusive use of the lectures in the classroom constrains students learning”. Studies show that students loose their concentration after 15-20 minutes of the lectures [3,4] the case is similar for even highly motivated postgraduate students [5]. Therefore, the reform of instructional practice at higher education needs

attention, it is important to promote learning strategies which involve students actively and engage them in problem solving activities. Active learning approach has been successfully used in integration with the lecturing technique across the disciplines by the insertion of brief demonstrations, class discussions, ungraded written exercises etc. Reference [6] present a set of strategies to enhance students' involvement in their own learning, naming a few as short writes, brainstorming, quick surveys, think-pair-share, formative quizzes, debate, role playing, cooperative learning, collaborative learning, and student presentations.

The present study is meant to encourage active learning strategies in lectures in order to facilitate the teachers with improved student engagement and learning outcomes.

The primary objective of the study was to determine whether active learning teaching strategies could improve the learning motivation, communication skills and the academic achievement of the graduate learners when blended with the traditional lecture method of teaching. The study is expected to inform the instructors in all disciplines in higher education to adapt the changing pedagogies to enhance the quality of education. It will broaden their repertoire of pedagogical techniques that foster critical thinking and problem solving skills to develop cognitive abilities of the learners.

The following null hypotheses were made for the present study:

1. There is no significant difference between the pre and post Academic Achievement of students taught through active learning strategies.
2. There is no significant difference between the pre and post Academic Motivation of students taught through active learning strategies.
3. There is no significant difference between the Communication Skills of the students taught through active learning strategies.

B. Literature Review

Cognitivism and constructivism provides the foundation for active learning; however, active learning has not been properly defined[2,7,8,9]. Different researchers in the field have defined this term differently. Reference [2] defined it as an instructional method that engages students in meaningful activities during the process of learning. Ebert et al viewed

Active learning as a way of improving student learning in the classroom by involving the student directly in learning process [10]. Active learning is simply engaging the students in some activities that stimulate them to think about and comment on the information presented. Students are required to develop skills in handling concepts and to analyze, synthesize, and evaluate the provided information in discussion with other students, through asking questions, or through writing.

Over dependency on lecturing technique cultivate passiveness among the students. Diversity in teaching styles can enhance student involvement [11].

Although there are many approaches to the concept of active learning, some common characteristics listed by [2] for active learning are: Students are involved in more than listening, Emphasis is placed on skill development, Students are involved in analyzing, synthesizing and evaluating the information, Students are engaged in reading, writing and speaking activities, and the students' exploration of their own attitudes and values is emphasized.

Reference [12] suggest that students must read, write, discuss, or be engaged in classroom and mainly, to be actively involved, they must be engaged in higher-order thinking tasks as analysis, synthesis, and evaluation. Reference [6] present a set of strategies to enhance students' involvement in their own learning: "*Active learning techniques focus on the direct involvement of the student with the learning material and can include short writes, brainstorming, quick surveys, think-pair-share, formative quizzes, debate, role playing, cooperative learning, collaborative learning, and student presentations to name a few*".

So, Active learning can be viewed as instructional activities involving students in doing and thinking about doing. Active learning techniques emphasize meaningful use of the acquired cognition and skills by changing the role of students from passive listeners to active recipients of knowledge. One way to incorporate active learning in classrooms is through active-lecturing. Reference [2] were of the view that pauses during the lectures for the consolidation of notes and enhancement of retention and comprehension. Reference [13] in their research, suggest pauses to allow students write questions about the issues under discussion. Other recommended strategies to involve students in the lectures are: demonstrations, writing tasks, small work groups (collaborative/cooperative work projects), problem solving and asking oral questions.

The use of active learning strategies in classroom is vital to have a positive impact on the quality of the students learning process and outcomes. Literature [14,15,16] points out that students prefer strategies that promote active learning than traditional lesson.

Despite the effectiveness of active learning, teachers are resistant to such instructional shifts and rely on more traditional didactic means of instruction [17]. In the literature, numerous barriers to this adaptation are cited. For teachers, experimenting a new pedagogy creates feelings of discomfort and lack of confidence [18]. Faculties feel comfortable with lecturing and

consider it an effective means of transmitting large amount of information [19]. According to faculty, heavy course contents, limited time span and large classes prohibit active learning [2].

II. RESEARCH METHOD

The present study was conducted on first year masters of education students studying at IIUI, registered in three credit hour course of "Research Methods in Education" as a part of their degree requirement. The population of the study comprised of the 53 first semester students. They were taught through traditional lecturing method for the first two months of their semester. After mid term examination the teaching strategy was changed by the addition of Active learning strategies to the lectures. The experiment continued for a period of next two months. The student teacher interaction was twice a week for one and half hour per session. The research was experimental in its form. The experimental design used was single-group pretest-posttest design. Pretest-posttest designs are widely used in behavioral research, primarily for the purpose of comparing groups and/or measuring change resulting from experimental treatments[20]. The study was conducted as a pilot project by the researchers. They studied the available literature on active learning strategies and then selected low risk level strategies because the study was meant to investigate the effect of active-lecturing on the selected components of learning in large classrooms where traditional lecturing is considered to be the best method to impart knowledge and the implementation of the active learning strategies are considered near to impossible. The course contents were divided into two parts, one to be taught before the treatment and the second during the treatment. Second part of the course contents was rewritten by the incorporation of appropriate activities into the teaching materials. The basic structure of the active lecture developed was:

Warm-up activity	5min
Lecture segment (1)	30min
Activity	5-8min
Lecture segment (2)	30min
Activity	5-8min
Evaluation session	10min

The delivery of active lectures was qualified through pre delivery discussions of the researchers and the post lecture students' response.

A. *Tools of Data Collection:* The students were tested twice. The following two instruments were utilized as pre-test and post-test to measure Motivation and Academic achievement of the students.

- a. Motivated Strategies for Learning Questionnaire [21] was adapted to measure the motivation level of students during the course of study. The instrument shows reasonable predictive validity to the actual course performance of the students [22].
- b. The results of midterm exam (taken before experiment) and final exam to measure Academic Achievement of student teachers.

- c. A questionnaire was developed and administered twice for testing the communication skills of the students.

B. Testing the Hypotheses

T-test was selected as a statistical procedure to test the hypotheses of the study.

C. Discussion on Analysis

The use of active-learning strategies in integration with the traditional lecturing was tested for its effect on the students' motivation, communication skills and academic achievement. To compare the performance before and after the exposure to active learning strategies, *t*-tests were performed and all differences in the mean scores were shown to be statistically significant at the 5% level. The results suggest that the learners when exposed to the active learning activities during the lectures, outperformed as compared to the teaching made by traditional lecture method. To test the effect of the innovative technique of active lecturing on the learners, three variables were selected and analyzed separately. The effect of the active lecturing on all the three variables was significant, the details of which are as under:

D. Motivation

Academic success relies on students being motivated towards learning. Active learning have many long term benefits such as students have greater comprehension of the content and skills, develop more positive social skills and are more inclined towards learning.

Following table shows the results of the Learning Motivation survey.

Variable	No. of Cases	Mean	Difference of Means	Standard Deviation	t-Value	Degree of freedom
Motivation before	54	210	61	149	1.8370	106
Motivation after	54	271		192		

The table presents the summary of the descriptive statistics for the group before and after exposition to active lecturing. The difference of means suggests that there is a significant improvement in the motivation level of the learners after teaching by the use of active learning strategies. To ensure that the difference is significant, we applied *t*-test for independent groups. The results of the test provide clear evidence that the level of motivation after engagement with the active learning strategies significantly increased which shows that the impact of active lecturing on the motivation level of the learners is positive.

E. Communication Skills

Active learning enhances communication skills in a number of ways. It is important for teachers to explore those ways through which students can participate in active learning.

Following table shows the results of the communication skills survey.

Variable	No. of Cases	Mean	Difference of Means	Standard Deviation	t-Value	Degree of freedom
Comm. Skills before	54	31	10	21	1.97	106
Comm. Skills after	54	21				

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Comm. Skills before	54	31	10	21	1.97	106
Comm. Skills after	54	21				

The results presented in the table provide clear evidence that the learners when engaged in the active learning activities achieved better communication skills than before. Active learning strategies when integrated with traditional lectures shift the thrust of lecture from teacher centre to student centre by maximizing class participation and lifting the confidence level of the learners. Active learning fosters comprehension, improves assimilation and application skills. It provides an opportunity to speak in the class room; this oral participation enhances the communication skills of the learners. Through improvement of communication skills, the learners not only gain confidence to participate in the classroom activities but also learn to argument, which as an end result effects academic excellence positively. Development of communication skills leads towards the acquisition of presentation skills, the most required skill at tertiary level of education.

F. Academic Achievement

Through interaction during active learning classroom, students learn from one another as in their discussions on the content, cognitive conflicts arise and higher-quality understandings emerge that lead improvement in student achievement.

Following table shows the results of the pre and post test scores.

Variable	No. of Cases	Mean	Difference of Means	Standard Deviation	t-Value	Degree of freedom
Pre-test scores	54	78.93	26.89	52.80	2.07	106
Post-test Scores	54	52.04		79.43		

The results suggest that the academic achievement of the learners improved when exposed to the active-learning strategies. Significant difference in the mean scores state that active learning strategies when used along with the lecture method, have positively affected student's academic scores. The group performed significantly better on the content exam in comparison to the pre-test. The study indicated the relevance of active learning to student overall learning, but how far it is effective in the context of the quality of learning, is yet to be examined.

III. CONCLUSIONS AND RECOMMENDATIONS

At many universities and colleges where teachers assume lecture method of teaching as the only way out for handling large classes, passive teaching-learning environment can be converted to active by simply modifying the traditional lectures through integration of active learning strategies and transforming them into active lectures. The results of the present study suggest that active lecturing impart knowledge more effectively than traditional formats. The conclusions drawn are merely suggestive because of the limitations of the study, however, it may be suggested that more research be

conducted in this important area with the selection of other variables and may be experimented for other subjects. It would be interesting to see if students respond to active lecturing in all educational disciplines equally or their responses are varied? Our results suggest that active lecturing enables the learners to absorb and retain information and increase their cognition and as a result they perform better on the post test. It is suggested to test the effect of active lecturing on the reasoning and creative abilities of the learners.

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