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Impact of Instructional Methods on the Performance of University Students

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Abstract: *Teaching is a continuous process for transmission of skills and knowledge attitudes in harmony with professional commitment. Transformation of knowledge involves teachers to use the appropriate instructional methods and pedagogical skills that best suit the learners. The study explored the effect of instructional methods on learners' achievement at the university level in pretest and posttest groups. The students studying in university of Lahore Sargodha Campus. The sample consisted of 40 students using a simple random sampling technique. The researchers used performance test score. The data were analyzed through inferential statistical test and mean and sd. The findings showed that both male and female university scholars had significant differences in the instructional methods in the posttest group. Male students were more prominent in activity-based, demonstration, and discussion methods. On the other hand, females were more prominent in lecture methods. The researchers recommended that teachers should use better innovative methods for the effective performance of students during the instructional process.*

Key Words: Instructional Methods, Students' Achievement, Knowledge Transmission

Introduction

At the higher educational level, the basic aim of teaching is the modification of students' behaviour (Tebabal & Kahssay, 2011). Instructors must have suitable teaching techniques that best depict specific objectives for knowledge transmission. The student-centered methods have effective education instructions for students' knowledge to seek attention in developing of educational goals (Hightower et al., 2011). Teachers have a role in the learning and teaching process adhere to the syllabus in order to pass on knowledge to pupils. The basic goal of education at a higher level is to make a substantial difference in students' life (Tebabal & Kahssay, 2011). The majority of existing methods were teacher-centered, with no activity for the students, making them passive and thus obtaining knowledge from the teacher without increasing their level of performance.

Teachers apply teaching process because they adhere to the syllabus in order to pass on knowledge to pupils. The teaching makes a substantial difference in the scholar's career (Tebabal & Kahssay, 2011). The majority of the existing methods with teacher-centered, without students' activities, to obtain knowledge from learning in increasing their level of interaction with the given material and memorize (Tebabal & Kahssay, 2011). Because they foster and embrace the concept of discovery learning, student-centered approaches are more effective (Brindley, 2015). Most professors nowadays use a student-centered approach to encourage students' curiosity, investigation, and critical analysis (Hesson & Shad, 2007). Teachers should adopt the methods of instruction that suits the learner with objectives and predictable outcomes while shifting knowledge. The majority of students' less grades in many disciplines of ineffective teaching

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approaches in imparting knowledge to pupils, and teachers should use multiple teaching approaches (Adunola, 2011).

Teachers and students interpret things in any teaching, learning, or assessing setting. The teacher tries to offer content that they are most familiar with for the benefit of the pupils and the learning process. It's doubtful that someone can transmit material intact from one person's understanding to another's understanding. According to modern thinking, information must be recreated as it travels from one person to the next. Prior knowledge, cognitive styles, attitudes, teaching styles, and other factors all play a part in this process.

Styles of Teaching

The word "cognitive style" has numerous definitions in the literature. They include "stable attitudes, preferences, or habitual strategies that differentiate the personal style of perceiving, remembering, pondering, and solving problems."

Teaching is a profession where professionals provide knowledge or skills to learners at tertiary and lower level educational institutions. Teaching is the process of systematic practice of attitudes, delivering knowledge, and skills with professional ethics, as per Ayeni (2011). Opposite to student-centered approaches, many experts used traditional epochs like teacher-centered approaches for education scholars. In the realm of research in education, the efficiency of teaching approaches makes students' learning easier and more interesting (Hightower et al., 2011). In the studies of Adgoke (2017), the tertiary institutions encourage teachers to use lecture technique that follows a teacher-centered approach, with results in learners' passiveness and artificial. Asikhia (2010) states that teacher credentials and pupils' environmental factors have suffered on scholars' achievement performance, but teachers' teaching approaches do. Adunola (2011) proposes that the majority of pupils with poor performance is fundamentally linked to instructors' teaching methodology in imparting knowledge to pupils. The willingness and ability of teachers in improvising the conventional teaching strategies are not available to evaluate the continuation of activities to check individualized learning differences. As per Ndirangu (2007), is determined by many factors, including the content of the course the purposes that teachers want to attain. The convenience of learning and teaching and capitals, and willingness to use these resources by the teachers to create strategies obtainable for development and evaluation activities in checking distinct learners. Teaching, as Ayeni (2011) proposes to entail an anticipated change in learners' behaviors to achieve a specific result. The teaching approach may prove actual when it comes with desired results and outcomes. Adunola (2011) opined that educators should be familiar with multiple teaching methods that identify the levels of difficulty of subjects to be lectured.

Learning and teaching theories highlighted the importance of instructors in assisting scholars' advance in areas other than their real academic ability, like concepts of better teaching. Teaching techniques are designs that teachers use either in a verified or concurrent order—selecting the most effective teaching strategies. One of the most crucial decisions a teacher must make is whether or not to meet course objectives. Teachers can make this selection easier if they know what approaches are accessible that each method suited for best understanding. Pianta and Hamre (2009) outline a variety of organizational and emotional support.

Methods that are just as crucial to students as the teachers' teaching. By making his or her educational approaches emotionally sympathetic and safer, teachers can help pupils become more independent, willing to take and eager to learn chances. According to Abubakar (2015), the primary purpose of instructional materials is to provide for learning of information. In the viewpoint of Ayeni (2011), employing appropriate methods to effect desired changes in learners. Because each student perceives and answers questions uniquely.

Methods that concentrate on the teacher include: In this method, students simply receive feedback from teachers without becoming more engaged in the subject being taught (Boud & Feletti, 1999). The conceptual and memorizing concepts are least practical (Teo & Wong, 2000). Because teachers are in charge of knowledge transfer and disseminators, they must endeavour to give as much data as possible while putting in as little time and effort as possible. As a result, it's possible that students' understanding and attention will be a failure. To address these flaws,

Zakaria et al. (2010) proposed that schooling focus on obeying rules, and processes for students to memorize, and start engaging students' learning.

Many researchers have welcomed more adaptable student-centered ways to promote knowledge acquisition since the advent of the concept of experiential knowledge (Greitzer, 2002). To stimulate students' interest, provoke critical thinking, and enjoyment for student-centered strategy (Hesson & Shad, 2007). The teaching style is regarded as more effective because the flow of knowledge to the student should be enhanced (Greitzer, 2002). In the study of Daluba (2013), the activity-stimulating with student-centered approaches like the demonstration method, instead of depending on traditional methods like lecture method, may be applied to enhance student achievement. The student-centered methods are complementary for effective delivery (Brindley, 2015).

Education is a form of enlightenment that teaches a person how to distinguish between the two concepts of right and wrong. The objective of education is not only to make a person knowledgeable, but also to teach him or her reasonable rational, the proper behavior, attitude, and the creation of autonomy and knowledge. Learning is a desire to bring about a revolution. There is always the opportunity for progress. It is possible to improve innovation, which benefits teachers and students. The concepts "teaching" and "learning" are synonymous. The quantity of knowledge received by the learner throughout the process is a very effective and practical approach for calculating good teaching. There are always positive correlations between student evaluations of the amount learned throughout the course of a semester and largely teacher and subject evaluations (Theall & Franklin, 2001). The efficiency of an instructor is measured by how much a student has learned over the course of instruction.

A teaching approach is a collection of concepts, policies, and techniques for instructing students. Class involvement, demonstration, and memory, or a combination of these, are some of the most commonly used teaching methods. The methods of teaching are used mostly determined by the skills and knowledge taught to pupils, but it can also be influenced by the students' ability to learn as much as they have the potential to learn. Many teachers are constantly experimenting with new teaching strategies in the classroom in order to improve student learning. According to Walker (2003), when conversation and learning material methods are applied effectively, students' higher learning skills can be developed.

Many institutions are attempting to employ excellent teachers in order to improve students' learning opportunities. Aside from that, they are attempting to investigate and uncover a variety of creative teaching approaches to improve teaching abilities. Many teaching approaches for instructors can use in classes to improve student performance, depending on the course requirements, students' abilities, and the availability of resources. In this study, comparisons were done in order to establish which is the most successful and beneficial teaching approach, with the goal of improving student retention and, ultimately, academic performance. The impact of different teaching approaches on student retention was investigated in this study.

Review of the Literature

Education is a complex and multifaceted endeavor. Education has a variety of collective goals, but its fundamental goal is solely to provide the necessary information among learners. Teachers can choose from a number of different instructional methods. Lectures, audio, discussions, computer technology, tutor as an organizer, and imitations are the most popular in-class techniques, according to studies (Davis, 1993; Grieve, 1995). There hasn't been much research for outcomes using diverse methods. Hilligoss (1992) discovered that when an interactive learning model was utilized instead of a lecture, students managed. According to Rutland (1990), teaching styles influence students' assessments, and students favor non-lecture forms (Smith 1996). The assessment is influenced by both teaching and learning styles. Instructors whose teaching techniques match their learning types receive higher ratings from students. Individual learning, group learning, and audio-visual learning are all common student learning approaches (Grasha, 1996).

The Process of Teaching and Learning

A classroom is considered a black box in terms of systems theory of management. Students, teachers, resources, rules, parental fears, and

other factors from external resources are stored. Some outcomes have been reached, such as good exam results, and teachers who are satisfied or exhausted. However, understanding what happens within the black box is crucial for ensuring that fresh inputs result in good outcomes. However, this explanation is insufficient for several reasons. First, some internal factors may be impacted, making it difficult for instructors to improve academic achievement and student retention rates. Second, making the instructor solely responsible for boosting students' standards is inequitable. As a result, policymakers and management should be active in providing facilities and assistance to instructors in order to create healthier learning (Black & Wiliam, 2006). Teaching strategies are the means through which students might be assisted in studying efficiently. Teaching methods refer to the strategies used by teachers to achieve their teaching goals, such as instructional organization and techniques in using teaching material. According to Ameh and Dantani (2012), the organization is important in every teaching, and the teacher's style can either encourage or inhibit learning. It can either enhance mental processes, which are the foundations of social power, or it can deter initiative and curiosity, making self-reliance and survival impossible. Teachers are also under a lot of pressure to assist pupils in improving their exam performance while also coming up with fresh ways to teach (Black & Wiliam, 2006).

Teachings is intricate in developing objectives and goals for teaching processes that are obtained, as well as the execution of procedures and the evaluation of successes and failures. A teaching strategy, tactic, or technique is a product of plans, strategies, and methods (Clark & Starr, 2001). According to Shymansky and Kyle (2008), the instructional approach encompasses the media, materials, and behaviour that the instructor use in creating an environment that has an effect. The achieving instructional goals and selecting appropriate teaching styles are not mutually exclusive. Erdem (2012) highlights four characteristics of effective teaching tactics. To begin, teaching tactics should aim to increase a student's performance.

Increases the motivation to learn by raising the urge to study and comprehend new situations. Second, teaching tactics should be constructed to assist learners in rapidly capturing information supplied through instruction, as well as developing learners' capacities in assimilation and application of knowledge. Next, teaching tactics should be organised in the most efficient way possible so that students may utilise their past knowledge to grasp new information. At last, teaching methods should be developed to encourage students to actively participate in their studies.

Diverse teaching tactics will result in different educational outcomes, and an instructor can choose strategies that are suited for his or her teaching goals. For a specific aim, one approach may be superior to another. However, a single technique may not be appropriate for all pupils or all subject areas. As a result, solutions should be chosen in accordance with a certain student demographic as well as the topic content (Erdem, 2012).

The selection of tactics and strategies is dependent on the learning activities chosen, the intended learning in pupils by picking the correct strategies (Clark & Starr, 2001). In viewpoint of Nbina and Obamamu (2011), when designing a variety of approaches for enabling student accomplishment of established outcomes by teachers what they teach. Agboola and Oloyede (2007) also underline the importance of a science teacher's ability to use a variety of science teaching approaches are most appropriate and effective. In a face-to-face setting, the traditional lecture technique frequently consists of a teacher-centered methodology (Berry, 2008). Due to the widespread use of this regulated manner of instruction of learning useful information. The motivation for attending lectures right now is to obtain the most up-to-date material required to pass the evaluation (Hake, 1998). The formal manner of lecturing has not proven to be beneficial in various situations. Researchers have discovered that combining standard lecture approaches with learner-centered methodologies is a more effective approach. Students display a superior knowledge of the content with group work or application (Wulff & Wulff, 2004). According to Knight and Wood (2005), interactive involvement and cooperative work were also used to replace some lecture time. Indeed, as teachers worked to accommodate students, lecture structure evolved to include more innovative tactics. Covering syllabus in the allotted time,

subject teachers frequently use the lecture mode of instruction, which does not allow knowledge of subject matter. Demonstration teaching is a technique of instruction. It entails demonstrating and performing. The teacher is responsible for displaying and explaining the phases in the process, while pupils are supposed to practice by repeating the tasks set by the teacher. This strategy is the most effective at bridging the theoretical and practical divide (Daluba, 2013). It reduces the number of breakages and mishaps by allowing pupils to observe the teacher performing the task before attempting it themselves, and it allows to teach skills. The low achievement score of students has been credited in part to science teachers' ineffective instructional and teaching approaches (Ameh & Dantani, 2012). Daluba (2013) cited the low achievement among secondary level students in science subjects is main shortfalls affecting learning in science-related subjects.

Objectives of Study

The research objectives were:

1. Identify the teaching methods used by the teachers at the university level.
2. Explore the effect of instructional methods on learners' achievement at university level in pretest group.
3. Identify the effect of instructional methods on learners' achievement at the university level in posttest group.

Research Hypotheses

The research hypotheses of the study were as under:

Ho 1: There are no apparent differences in teaching methods used by the teachers at the university level.

Ho 2: There are no apparent effects of instructional methods on learners' achievement at university level in the pretest group.

Ho 3: There are no apparent effect of instructional methods on learners' achievement at university level in the posttest group.

Research Design

The study was experimental and a test was used for the gathering of data from the participants. For data collection purposes, the test was established administered on respondents.

Population and Sample

All the university students were the population of the study. The group was established using random sampling technique from B. Ed. Hons students from the University of Lahore, Sargodha Campus. The students were pretested and made randomized selection f the groups.

Instrumentation

The self-developed test was used. The instrument was pilot tested using validity and reliability analysis on a small group of students. The analysis was made using t-test analysis. The instructional methods that were used were, lecture method, activity-based methods, demonstration method. The performance of the students was calculated based upon their test scores in pretest and posttest results.

Research Procedure

After randomized application, the pretest was conducted from instructional methods. The scores were recorded. After this, the experiment was started that lasted four weeks. The test was again conducted as a posttest and the results were recorded. The both groups were compared using t-test.

Results

The data scores were tabulated and analyzed using SPSS version 24. Mean and sd were used for descriptive data analysis. For comparison of results, a t-test was applied.

Ho 1: There are no apparent differences in teaching methods used by the teachers at the university level.

Table 1. Instructional Methods

S. No	Indicators	Dimensions	Mean	sd
1	Activity-based Method	Student-Centered Methods	4.62	1.128
2	Demonstration Method		4.60	2.621

3	Discussion Method	Teacher-Centered Methods	3.44	1.561
4	Lecture Method		3.40	1.431

Table 1 showed the instructional methods used by university teachers. The activity-based method had a mean of 4.62 and sd value of 1.128. The demonstration method had 4.60 mean values and 2.621 sd values. The discussion method had 3.44 mean values and a 1.561 sd value. The lecture method had 3.40 mean values and a 1.431 sd value.

Ho 2: There are no apparent effect of instructional methods on learners' achievement at the university level in the pretest group.

Table 2. Effect of instructional methods on learners' achievement in Pretest Group

Indicators	Gender	N	Mean	Std. D.	t	p
Activity-based Method	Male	20	50	1.411	1.263	.213
	Female	20	52	.651		
Demonstration Method	Male	20	51	1.234	1.146	.234
	Female	20	49	1.321		
Discussion Method	Male	20	53	.762	2.234	.261
	Female	20	54	1.355		
Lecture Method	Male	20	52	1.432	3.761	.204
	Female	20	53	1.346		

According to table no. 2, t-test results were tabulated and interpreted in finding out the differences between males and females' respondents about the effect of instructional methods on learners' achievement at university level in pretest group. It revealed that there were non- apparent difference in gender of respondents about effect of instructional methods on learners' achievement at university level in pretest group. The mean achievement score of male respondents (M = 50, SD = 1.411) and female teachers (M = 52, SD = .651, t(38) = 1.263, p= 0.213) under activity-based method. The mean achievement score of male respondents (M = 51, SD = 1.234) and female teachers (M = 49, SD = 1.321, t(38) = 1.146, p= 0.234) under demonstration method. The mean achievement score of male respondents (M = 53, SD = 1.411) and female teachers (M = 54, SD = .762, t(38) = 2.234, p= .261) under discussion method. The mean achievement score of male respondents (M = 52, SD = 1.432) and female teachers (M = 53, SD = 1.346, t(38) = 3.761, p= .204) under lecture method. The research hypothesis about apparent effect of instructional methods on learners' achievement at university level in pretest group was accepted. It was concluded that both male and female university students had no difference in teaching methods in pretest group.

Ho 3: There are no apparent effects of instructional methods on learners' achievement at university level in posttest group.

Table 3. Effect of instructional methods on learners' achievement in Posttest Group

Indicators	Gender	N	Mean	Std. D.	t	p
Activity-based Method	Male	20	68	.904	3.435	.001**
	Female	20	62	.289		
Demonstration Method	Male	20	70	.433	1.633	.002**
	Female	20	64	.156		
Discussion Method	Male	20	75	.903	2.432	.001**
	Female	20	68	.521		
Lecture Method	Male	20	70	.424	-1.039	.004**
	Female	20	78	.435		

***p<0.01*

According to table no. 2, t-test results were tabulated and interpreted in finding out the differences between males and females' respondents about the effect of instructional methods on learners' achievement at university level in pretest group. It was an apparent difference in the gender of respondents about effect of instructional methods on learners' achievement at university level in pretest group. The mean achievement score of male respondents (M = 68, SD = .433) and female teachers (M = 62, SD = .156, t(38) = 3.435, p= 0.001) under activity-based method. The mean achievement score of male respondents (M = 70, SD = 1.234) and female teachers (M = 64, SD = 1.321, t(38) = 1.633, p= 0.002) under demonstration method. The mean achievement score of male respondents (M = 75, SD = .903) and female teachers (M = 68, SD = .521, t(38) = 2.432, p= .001) under discussion method. The mean achievement score of male respondents (M = 70, SD = .424) and female teachers (M = 78, SD = .435, t(38) = -1.039, p= .004) under lecture method. The research hypothesis about apparent effect of instructional methods on learners' achievement at university level in posttest group was rejected. It was concluded that both male and female university students had significant differences in the instructional methods in posttest group. Male students were more prominent in activity-based, demonstration, and discussion methods. On the other hand, females were more prominent in lecture methods.

Results and Discussion

The activity-based method had a mean of 4.62 and sd value of 1.128. The demonstration method had 4.60 mean values and 2.621 sd values. The discussion method had 3.44 mean values and a 1.561 sd value. The lecture method had 3.40 mean values and a 1.431 sd value.

It was non-statistically apparent difference in gender of respondents about effect of instructional methods on learners' achievement at university level in pretest group. The mean achievement score of male respondents (M = 50, SD = 1.411) and female teachers (M = 52, SD = .651, t(38) = 1.263, p= 0.213) under activity-based method. The mean achievement score of male respondents (M = 51, SD = 1.234) and female teachers (M = 49, SD = 1.321, t(38) = 1.146, p= 0.234) under demonstration method. The mean achievement score of male respondents (M = 53, SD = 1.411) and female teachers (M = 54, SD = .762, t(38) = 2.234, p= .261) under discussion method. The mean achievement score of male respondents (M = 52, SD = 1.432) and female teachers (M = 53, SD = 1.346, t(38) = 3.761, p= .204) under lecture method. The research hypothesis about apparent effect of instructional methods on learners' achievement at university level in pretest group was accepted. It was concluded that both males and female's university students had no difference in the instructional methods in pretest group.

It was an apparent difference in the gender of respondents about effect of instructional methods on learners' achievement at university level in pretest group. The mean achievement score of male respondents (M = 68, SD = .433) and female teachers (M = 62, SD = .156, t(38) = 3.435, p= 0.001) under activity-based method. The mean achievement score of male respondents (M = 70, SD = 1.234) and female teachers (M = 64, SD = 1.321, t(38) = 1.633, p= 0.002) under demonstration method. The mean achievement score of male respondents (M = 75, SD = .903) and female teachers (M = 68, SD = .521, t(38) = 2.432, p= .001) under discussion method. The mean achievement score of male respondents (M = 70, SD = .424) and female teachers (M = 78, SD = .435, t(38) = -1.039, p= .004) under lecture method. The research hypothesis about apparent effect of instructional methods on learners' achievement at university level in posttest group was rejected. It was concluded that both male and female university students had significant differences in the teaching methods in posttest group. Male students were more prominent in activity-based, demonstration, and discussion methods. On the other hand, females were more prominent in lecture methods.

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