

## IMPACT OF FORMATIVE ASSESSMENT ON STUDENTS' ACADEMIC ACHIEVEMENT AT UNIVERSITY LEVEL

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### ABSTRACT

Using formative assessment techniques at the higher education level increases the learning level of the students and extensively polishes the teaching skills of the teachers. The aim of this quantitative research was to identify the teachers' frequently used formative evaluation techniques in the university context, and to identify the impact of formative evaluation techniques on the academic achievement of students. For this study, causal-comparative research design has been used. The study population was students from two government universities of Lahore District, Pakistan. There were 480 students in the sample. The investigator used learners to respond on a self-developed questionnaire. The validity of the questionnaire was assured by the research experts, while reliability by using Cronbach Alpha was established at .901 with 32 items. Results indicated that the mean score of both sampled university learners with respect to formative evaluation methods differed significantly. It was also revealed that educators generally do not use regularly the methods of formative assessment. Generally teachers do not involve their students actively in learning; hence students' academic achievement remains low. The study recommends that teachers should plan the different suitable formative assessment techniques to increase the level of students' learning.

**Keywords:** Formative Assessment, Oral and Written Feedback, University Students, Academic Achievement

### INTRODUCTION

Developing successful higher education assessment can pose unique challenges for courses at the graduate and undergraduate levels. It is because many assignments to the graduate course are based on project rather than objective. In many cases formative assessment becomes a motivational tool of evaluation. The use of accurate assessment combined with objective-based assessments can provide students with a

more positive and fulfilling experience in undergraduate courses where there is often a significant amount of information that needs to be communicated.

There are many forms of assessment that use real situations and actively involve students. Authentic, formative, and performance-based are used interchangeably and frequently. The word formative assessment tends to be most fitting

because it refers to the normal objective-based assessment that is so prevalent today in the classroom and higher education.

A large number of researches and comprehensive views of research shows that the effective use of formative assessment techniques in a classroom increase the learning level of students and their academic achievements (Black & William, 1998a). But it is obviously clear from different studies that achieving this is often by no means that easy task. A lot of researches are unknown concerning the institutional conditions that facilitate lecturers to find out new assessment practices (James, Black, McCormick, Pedder, & William, 2006).

The task of applying assessment into practice is a way over an easy method of 'translating' the findings of researchers into the teaching (James, et al., 2006). The assignment of applying investigation into training is considerably more than a basic procedure of 'interpreting' the finding of experts into the classroom (Black & William, 2003). Specifically, a solid research base supporting how to viably assist instructors with implementing a developmental evaluation practice is missing (Schneider & Randel, 2010; William, 2010). Therefore, there is a requirement for intervention in formative assessment.

Research that gives precise evaluations of the effect of formative assessment in developmental classroom assessment on students' results is simply starting. This sort of research is basic to decide whether proficient advancement in classroom evaluation is successful in increasing students' achievement and changing educator practice. This kind of research is likewise expected to more readily comprehend for whom proficient advancement in developmental classroom assessment is successful and under what conditions (Schneider & Randel, 2010).

Very few researches have explored the effect from professional development programs in evaluation concerning both instructor practice and students' achievement (Vescio, Ross, & Adams, 2008). Thus, the connection between expert improvement projects' effect on teacher's classroom assessment practices and effect on students' achievement has not been all around researched. Writing on expert advancement in developmental evaluation demonstrates that despite numerous national change activities in developmental evaluation (Tierney, 2006). Some

nations still request progressively broad utilization of developmental assessment in schools. Moreover, observational studies report illustrates understandings and shallow executions of formative assessment (Torrance, 2007). Additionally they thought about in hypothetical reflections the exploration field. This exploration can be viewed as a sign of the troubles and complexity associated with the execution of classroom assessment.

The instruction framework calls for both general fruitful methods for educating and subject-explicit methods for teaching. One point of instructive science is to give research to be utilized in schools to enhance students learning. Instructive research needs to lead inquire about that is "progressively helpful to experts and to policymakers, enabling the last to improve educated, less-theoretical choices that will enhance practice all the more dependably" (Burkhardt & Schoenfeld, 2003). In light of the researches facts demonstrating that the utilization of developmental can be surprisingly fruitful for raising students' success, government officials and additionally principals and instructors, demonstrate an extraordinary enthusiasm for developmental evaluation. In this way, many change activities in developmental evaluation are taken.

Along these lines, solid research proof about qualities of effective research advancement programs in formative assessment is of outrageous incentive for instruction frameworks attempting to enhance learning. The need of creating, actualizing and examining proficient advancement programs in formative assessment is of substance. We have to find out about how to plan powerful expert improvement in formative assessment and what sort of formative assessment incorporate into such program.

An affective formative assessment technique plays a vital role in improving quality of education. At university level, generally teachers do not use formative assessment techniques effectively. For this purpose, current study was carried out to investigate the impact of formative assessment on students' academic achievement in university classroom context. Although research studies have included the student as the most important user of information and concluded that the student's emotional response to assessments was important to that increase in academic achievement. Few studies have examined the direct connection with

the use of formative assessment attributes and the resulting impact on student affect. Most of the research on formative assessment has showed the impact it had on student achievement. This study may help and provide guidance to the university students in improving their grades in academics.

### Objectives and Research Questions

The objectives of the study were to:

- a) find out the impact of formative assessment techniques on students' academic achievement;
- b) Identify the formative assessment practices used by the teachers in university classroom context.

Based on these objectives, the study explored the following research questions:

1. Which formative assessment techniques are usually practiced by the teachers at university level?
2. Is there any significant impact of formative assessment techniques used by teachers on their students' academic achievement?

### Methodology

The study carried quantitative research design and was causal comparative in nature. Five point Likert type scale was used for the data collection from students. To answer the research questions, students' perceptions on assessment and their academic achievement were considered.

### Population and Sample size

The target population of the study was the students from University of Education, Lahore and University of the Punjab, Lahore. The students of the four common faculties in both universities were the accessible population of the study, which were 23800.

Six departments from each university were selected purposively for data collection as those departments were selected from the two sampled universities which were common. Forty students from each department were selected as a sample on convenient basis. 240 students from University of the Punjab and 240 students from University of Education were the part of the study. Hence the total number of students for the study was 480.

Table 1: Demographic Information of Respondents

University	Students
University of the Punjab	240
University of Education	240
Total	480

### Instrumentation and validation

Instrument was a survey questionnaire for the sampled 480 students from the selected departments of two universities. Instrument was developed under the guidance of supervisor. The questionnaire was consisted on four constructs, Students' Attitude (6 items), Feedback and Self-assessment (8 items), Collaboration (8 items), and Motivation (10 items).

The demographic information about the respondents in a questionnaire was included students' CGPA, gender, and semester. The second part of the questionnaire was consisted of 5-point from "1"strongly disagree (SDA) to "5" strongly agree (SA). Before piloting instrument was analyzed by three professors of Institute of Education and Research University of the Punjab, Lahore. Some questions were deleted from the questionnaire and some were merged. They gave feedback on the given instruments in three categories, format style, conceptual and language

presentation. The recommended things were corrected and modified under the light of suggestions given by them. After this whole procedure and experts' opinion 32 statements were finalized for this study. Reliability of the scale value by using Cronbach's Alpha with number of items 28 was .901. The reliability of the subscales was Students' Attitude (.786), Feedback and Self-assessment (.679), Collaboration (.771) and Motivation (.824).

### Findings

To apply the statistical techniques the entire data collected was structured and organized. For descriptive statistics, Mean and Standard Deviation were calculated according to the demographic variable to measure the respondents' averages. The independent sample t-test and one way ANOVA were implemented in inferential statistics according to the demographic variables.

Table 2: Students' views About Formative Assessment Techniques Used by Teachers on the Basis of Gender

Gender	N	Mean	SD	t-value	Df	Sig.
Male	157	119.8790	17.40666	.708	478	.081
Female	323	118.7709	15.40479		2	

Table 2 represented that an independent-samples t-test was conducted to compare the mean score difference for male and female respondents. There was no significant difference in scores for males ( $M = 119.8790$ ,  $SD = 17.40666$ ) and females ( $M =$

$118.7709$ ,  $SD = 15.40479$ ;  $t(478) = .708$ ,  $p = .081$ ). The male students were relatively more agreed and satisfied with the formative assessment techniques used by the teachers at university level as compared to female students.

Table 3: Students' Views about Formative Assessment Techniques Used by Teachers on Degree Basis

Degree	N	Mean	SD	F	df	Sig.
M.A	266	118.6955	15.84219	.280	2	.756
M.Sc	160	119.4563	16.72713		477	
B.Ed (Hons.)	54	120.3333	15.46024			
Total	480	119.1333	16.07715			

Table 3 shows that one-way between-groups analysis of variance was conducted to explore the impact of different degrees students' score, as measured by the Likert scale. Participants were divided into three groups according to their degree program (Group 1: M.A; Group 2: M.Sc;

Group 3: B.Ed (Hons.)). There was no statistically significant difference at the  $p < .05$  level in mean scores for the three groups:  $F(2, 477) = .280$ ,  $p = .756$ . B.Ed (Hons.) students are more satisfied and have positive attitude about assessment techniques used by the teachers in classroom.

Table 4: Students' Views about Formative Assessment Techniques Used by Teachers on the Basis of Semester

Semester	N	Mean	SD	t-value	df	Sig.
Second	242	118.9421	16.92517	-.262	1	.126
Fourth	238	119.3277	15.19972		478	

Table 4 represented that an independent-samples t-test was conducted to compare the mean score difference for second semester students response and fourth semester students response. There was no significant difference in scores for second semester students ( $M = 118.9421$ ,  $SD = 16.92517$ )

and fourth semester students ( $M = 119.3277$ ,  $SD = 15.19972$ ;  $t(478) = -.262$ ,  $p = .126$ ). The fourth semester students were more agreed and satisfied with the formative assessment techniques used by the teachers at university level with compare to second semester students.

Table 5: Students' Views about Formative Assessment Techniques Used by Teachers on the Basis of CGPA

Previous CGPA	N	Mean	SD	F	df	Sig.
2 to 2.5	33	118.3636	14.76655	.737	3	.530
2.6 to 3.0	158	120.6709	16.05660		476	
3.1 to 3.5	219	118.5114	16.40971			
3.6 and above	70	117.9714	15.73326			
Total	480	119.1333	16.07715			

Table 5 shows that one-way between-groups analysis of variance was conducted to explore the impact of different CGPA students', as measured by the Likert scale. Participants were divided into 4 groups according to their CGPA (Group 1: 2 to 2.5 CGPA; Group 2: 2.6 to 3.0 CGPA; Group 3: 3.1 to 3.5 CGPA; Group 4: 3.6 and above CGPA. There was no statistically significant difference at the  $p < .05$  level in mean scores for the four

groups:  $F(3, 476) = .737$ ,  $p = .530$ . However, mean values show some difference. The students those have 2.6 to 3.0 CGPA are more satisfied and have positive attitude about assessment techniques used by the teachers in classroom.

#### Discussion

Hanover (2014) found that learning objectives and assessment techniques improve students' abilities

and self-assessment at higher education, and as a result learning outcomes improved. It was explained that formative assessment helped the students especially to low achievers, because it focused on specific aspects of learning with their work and solved the problem. Formative assessment identifies what is wrong and how to do it right. In the light of findings in this study, it was found that male students at higher education level were well aware with formative assessment techniques as compared to female students. The results of the study were aligned with previous studies that the use of formative assessment resulted in significant learning for students at higher education level (Black & William, 1998a). Junqueira and Kim (2013) reported that, observer noticed the teachers who concentrated on pointing out the mistakes of students in front of the class while teaching. It was found that that mostly teacher used oral feedback on students' assignments questions and works. Whenever teachers give oral feedback to students, then it's becoming a cause for increased academic work for them. It has been found that written feedback from teachers on the students increases their academic performance in classrooms at universities. Written feedback has been found to have a positive effect on the academic work of the students. This study support that students were agreed about tests in class help them in learning, understanding the ideas related to topics and knowing their mistakes. It is found that mostly students think the use of formative assessment techniques in a class help them in self-assessment and feedback. There were also a considerable number of students who think that tests in a class were wastage of time. Mean scores of statements in factor three "collaboration" shows that students were not so much agreed about the teacher student collaboration in a class. In motivations factor, a large number of students agreed and expressed their experiences that the use of assessment techniques motivates them towards learning.

The impacts of formative assessment on students' academic achievement was measured in the study, in classrooms where formative assessment practices were used frequently had higher results than less used of formative assessment techniques classroom. This result was also matching the results which found in the literature examining

the impacts of formative assessment techniques (Black & William, 1998a).

Students often participate actively in classroom listening to lecture or demonstration behavior during lecture according to the findings of this study. Studies has clarified the value of teaching method in learning they say when teachers use the right formative assessment methods such as oral quiz in the classroom, students take an interest in lecturing and actively participate in a classroom. Klenowski (2009) says that most teachers desire a combination of feedback approaches that rely on different situations and students, but rather the approach that often used in this study was quantitative research. These results were found due to several reasons. Identification of formative assessment techniques used by the teachers in university classrooms and secondly, the students were divided into groups with respect to their semester and CGPA. And then their views were recorded on questionnaire.

#### Conclusion and Recommendations

This research on teaching, learning and assessment at university level has revealed a good picture of assessment practices. The fact is that knowledge on the impact of the different approaches to teaching and assessment is limited at university level. Mostly university teachers do not use most effective formative assessment techniques in a classroom, as a result the objectives did not achieve. Without better knowledge of what works and what does not work, it will be difficult to improve teaching learning process at university level, or to develop effective practices across the sector. The research provides direction for future research and development. The more involvement of students in a classroom, correct use of formative assessment and feedback increases the level of learning as well as teaching. The recommendations of the study were as follow.

1. The administration and teachers may work together to develop formative assessment plan which may improve their level the quality of teaching.
2. It is difficult but not impossible to change the system at of assessment once so there is need of workshops about the use of assessment, teachers training, supportive environment, especially assessment in classroom.

3. It is recommended that the study may be use full for university teachers to planning different suitable formative assessment techniques to increase the level of students learning.
4. Research may be conducted on specific formative assessment techniques, including feedback, questioning and scaffolding; validated assessment instruments more research on how adult foundation skill learners progress from basic to more complex.
5. More research on learner persistence; more extensive evaluations of promising e-based programmes as a complement to traditional learning; broader surveys of current teaching, learning and assessment practices.
6. It is recommended that further qualitative researches may be conducted to find out the formative assessment techniques used by teachers at university level and its impacts on students' academic achievement through unstructured observations and student interviews.

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