



INFLUENCE OF FORMATIVE ASSESSMENT ON ACADEMIC MOTIVATION

Muhammad Riaz S. Janjua^{1*}, Jamilah Riaz Janjua², Haider Ali Janjua³, Farhan Ahmad⁴, Saqib Khan⁵, Asif Iqbal Khan⁶

^{1*}Chairman, HBS Medical and Dental College, Islamabad, Pakistan. Email: chairman@hbs.edu.pk

²Director, Department of Medical Education, HBS Medical and Dental College, Islamabad, Pakistan

³Demonstrator, Department of Medical Education, HBS Medical and Dental College, Islamabad, Pakistan

⁴Principal, HBS College of Allied Health Sciences, Islamabad, Pakistan

⁵Department of Medical Education and Research HBS Medical and Dental College, Islamabad, Pakistan

⁶Assistant Professor, HBS College of Allied Health Sciences, Islamabad, Pakistan

Abstract

Background: Academic motivation is one of the factors associated with student learning, involvement and success in the education system. Traditional assessment practices tend to pay more attention to the product at the end, while formative assessment has a much greater emphasis on monitoring learning processes and giving feedback to guide learning improvement. The importance of using formative evaluation as an effective teaching method to boost students' motivation and stimulate their involvement in learning has been gradually acknowledged.

Objective: To determine the influence of formative assessment on academic motivation among students.

Methods: A descriptive cross-sectional study was conducted at HBS Medical and Dental College, Islamabad, Pakistan from February 2025 to July 2025. The non-probability consecutive sampling was used and 74 students were included. The data was gathered through a structured questionnaire with the inclusion of the variables related to the formative assessment and variables related to academic motivation. The formative assessment variables were participation in quizzes, assignments, class tests and feedback sessions. Academic motivation was classified as low, moderate and high. Data was analysed by SPSS software. The frequencies, percentages, means, standard deviations, chi-square test, independent sample t test and Pearson correlation analysis were used. The p value of ≤ 0.05 was regarded as statistically significant.

Results: Of the 74 students, 42 (56.8%) were female and 32 (43.2%) were male. Regular participation in formative assessment activities was reported by 52 (70.3%) students. High academic motivation was observed in 27 (36.5%) students, while 34 (45.9%) demonstrated moderate motivation. The mean motivation score was significantly higher among students who regularly participated in formative assessment compared with irregular participants (78.6 ± 8.4 vs. 65.9 ± 9.7 ; $p < 0.001$). Students who received feedback showed significantly higher motivation levels than those who did not receive

feedback ($p=0.003$). A moderate positive correlation was found between formative assessment score and academic motivation score ($r=0.58$, $p<0.001$).

Conclusion: Formative assessment has a positive influence on academic motivation among students. Regular participation in formative assessment activities and timely feedback are associated with higher motivation levels and improved academic performance. Incorporating formative assessment into routine educational practice may enhance student engagement and learning outcomes.

Keywords: Formative assessment, academic motivation, feedback, student engagement, learning outcomes, educational assessment.

Introduction

Academic motivation is a pivotal aspect of effective learning and a key factor in shaping students' participation, commitment, educational outcomes, and educational growth. Students with motivation are more active in learning activities in class and are more diligent in studying and they apply good learning strategies. By the other hand, low motivation can result into poor performance, less participation, and less interest in learning (1). Thus, educational researchers and teachers are still experimenting with how to enhance students' motivation and learning achievements (2).

Assessment is considered to be a continuous process of teaching and learning. Educational systems have traditionally been based on summative assessment, that is, assessing learning outcomes when the course or instructional period comes to an end (3). While summative assessment is valuable for measuring students' achievement, it may be of little value for helping students become aware of their failures and/or learn to improve while learning. Therefore, greater focus has been placed on the importance of formative assessment as a means of assisting learning as it happens (4).

Formative assessment is the ongoing process of obtaining data on student learning and employing the data to give feedback for student improvement (5). This can contain quizzes, assignments, class discussions, peer assessment, self-assessment, presentations, and teacher feedback. Formative assessment focuses on learning progression, not final grades, as is the case in summative assessment. Ongoing monitoring and feedback will enable pupils to be made aware of their strengths and areas for development and will enable pupils to adjust their learning strategies as a result (6).

There have been several studies that show formative assessment has positive impacts on student engagement, self-regulated learning, academic confidence and motivation. Students' learning is encouraged by continuous feedback, with a sense of competence and achievement. Moreover, formative assessment provides opportunities for student-teacher interaction; in turn, this can contribute to a supportive learning climate which can enhance interest in academic activities. There have also been indications that formative assessment can mitigate the fear that exists with high-stakes testing, by focusing on improvement instead of judgment. (7)

Several factors, such as personal attributes, learning climate, teaching strategies and assessment approaches, can affect academic motivation. Of these, formative assessment has proven to be a promising approach to teaching and learning as it is linked directly to learning improvement. Pupils who are regularly assessed and are actively involved in formative assessment activities may become more confident, independent and motivated to complete learning tasks. But the impact of formative assessment on academic motivation may differ among schools and students (8).

Despite growing evidence supporting the benefits of formative assessment, limited local data are available regarding its influence on academic motivation among students. Understanding this relationship may help educators design more effective assessment strategies that promote student engagement and enhance learning outcomes. Therefore, the present study was conducted to determine the influence of formative assessment on academic motivation among students.

Methodology

This study was conducted to assess the influence of formative assessment on academic motivation among students. A descriptive cross-sectional study design was used. This design was selected because it allowed the researcher to collect information from the study participants at one point in time and evaluate the relationship between formative assessment practices and students' academic motivation. The study was carried out at HBS Medical and Dental College, Islamabad, Pakistan. The duration of the study was six months, from February 2025 to July 2025.

The study population comprised students from the academic institution selected during the study period. The total number of students that participated in the study was 74. Those students who were present and willing to participate during the data collection period were included. Those students who did not participate or were unable to participate and those with only partial questionnaires were not included in the final analysis.

The participants were selected using non-probability consecutive sampling technique. The required number of 74 learners was achieved by repeatedly recruiting all learners who met the inclusion criteria. The objective of the research was discussed with the participants prior to data collection. They were told they were not required to take part and any answers they gave would be confidential. Prior to their participation in the study, informed consent was obtained, either orally or in writing, from each participant.

A structured questionnaire was used to collect data. The questionnaire was divided into various parts: Demographic information, academic performance indicators, academic motivation, feedback-related variables, and formative assessment related practices. The demographic variables were age, gender, academic year and residence. The formative assessment variables were participation in quizzes, assignments, class tests, short tests, presentations, feedback sessions, frequency of formative assessment, regularity of participation and timing of feedback. Academic motivation was measured with questions about interest in learning, confidence, self-directed learning, participation in class, academic effort and desire to improve performance.

Formative assessment was understood to be any assessment which took place during the teaching and learning process, to monitor what the students are learning, and to give them feedback on how to learn it better. It consisted of quizzes, assignments, class tests, oral questions, group work, presentations, feedback from teacher. Regular participation in formative assessment was determined by the extent of participation in the majority of formative assessment activities during the academic year. Irregular participation included occasional or infrequent participation in these activities.

The academic motivation was measured and classified into three categories: low, moderate and high motivation. If a student showed low participation, low interest in studies and low academic effort, these students were classified as low motivated. Students who participated moderately who had average interests and average academic efforts were classified as having moderate motivation. Students who

actively participated, demonstrated high interest in learning, exhibited confidence and diligence in studies, and had self-directed learning were considered as high motivated students. The mean and standard deviation of the motivation score was also determined to compare the groups.

Students' academic results were measured by self-reported or institutionally documented academic scores depending on the availability of these scores. Students who participated regularly in formative assessment were compared to students who participated irregularly in formative assessment in the mean academic score. It was additionally assessed whether academic motivation was related to formative assessment by comparing the levels of motivation between students who were fed back and students who were not fed back.

Data was entered and analysed by SPSS software. Categorical variables (gender, academic year, residence, participation in formative assessment, feedback received, motivation level) were converted to frequencies and percentages. The quantitative data of which was measured was the motivation score, and the academic score, which were statistically analysed using mean and standard deviation. The chi-square test was used for determining association between the formative assessment related variables and academic motivation level. Independent sample t-test was used to compare the differences between the mean scores of motivation and academic performance for students who participated in formative assessment regularly and irregularly. Pearson correlation was used to test the correlation between score of formative assessment and academic motivation score. A p-value of ≤ 0.05 was considered statistically significant.

Results

There were 74 students in the study. Demographic profile indicated that the majority of participants were 20-22 years old. The number of female students was just over that of male students. The majority of students indicated they participated regularly in formative assessment activities like quizzes, assignments, short tests, and feedback-based learning sessions.

Table 1: Demographic Characteristics of Students

Variable	Frequency	Percentage
Age group		
18–20 years	24	32.4%
21–23 years	38	51.4%
24 years and above	12	16.2%
Gender		
Male	32	43.2%
Female	42	56.8%
Academic year		
First year	18	24.3%
Second year	21	28.4%
Third year	19	25.7%
Fourth year	16	21.6%
Residence		
Urban	46	62.2%

Rural	28	37.8%
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By involvement in the students' daily school work, most students had a formative assessment experience. The most frequent type of formative assessment was weekly quizzes, followed by feedback sessions and assignments. Many students reported that feedback enabled them to see the areas in which they are lacking and adjust their learning style.

Table 2: Distribution of Formative Assessment Practices

Formative Assessment Variable	Frequency	Percentage
Participation in formative assessment		
Regular	52	70.3%
Irregular	22	29.7%
Common type of formative assessment		
Quizzes	29	39.2%
Assignments	18	24.3%
Class tests	15	20.3%
Feedback sessions	12	16.2%
Feedback received after assessment		
Yes	58	78.4%
No	16	21.6%
Timing of feedback		
Immediate	41	55.4%
Delayed	33	44.6%

Students' overall academic motivation was measured and classified as low, medium and high. The academic motivation of most of the students was moderate to high. Students who engaged with formative assessment activities frequently had a higher level of motivation.

Table 3: Level of Academic Motivation among Students

Academic Motivation Level	Frequency	Percentage
Low motivation	13	17.6%
Moderate motivation	34	45.9%
High motivation	27	36.5%
Total	74	100.0%

Students who engaged in regular formative assessment activities had a higher mean score for academic motivation than students who engaged in formative assessment activities irregularly. This difference was statistically significant and indicates that regularly scheduled formative assessment positively impacted student motivation.

Table 4: Comparison of Academic Motivation Score According to Participation in Formative Assessment

Participation in Formative Assessment	Number of Students	Motivation Score Mean $\pm$ SD	p-value
Regular participation	52	78.6 $\pm$ 8.4	<0.001
Irregular participation	22	65.9 $\pm$ 9.7	

The students who were given feedback after the formal assessment had higher motivation score than those who were not given feedback. This means that feedback plays a crucial role in formative assessment as it helps to direct learning, boost confidence and keep students motivated.

Table 5: Association Between Feedback and Academic Motivation

Feedback Received	Low Motivation	Moderate Motivation	High Motivation	p-value
Yes	6	27	25	0.003
No	7	7	2	
Total	13	34	27	

Regular formative assessment also led to an improvement in students' academic performance. The mean academic scores of the students who participated regularly were higher than those of students who participated irregularly. This indicates how formative assessment could help to enhance motivation and academic performance.

Table 6: Academic Performance According to Formative Assessment Participation

Participation in Formative Assessment	Academic Score Mean $\pm$ SD	p-value
Regular participation	75.8 $\pm$ 7.6	<0.001
Irregular participation	66.4 $\pm$ 8.9	

There was a positive correlation between the results of the formative assessment and academic motivation assessment. That is, students' academic motivation was positively related to their performance in formative assessment. The correlation was statistically significant and moderate.

Table 7: Correlation Between Formative Assessment and Academic Motivation

Variables Compared	Correlation Coefficient (r)	p-value
Formative assessment score and academic motivation score	0.58	<0.001

Overall, the results showed that formative assessment had a positive influence on academic motivation. More frequent attendance at quizzes, assignments, class tests, and feedback sessions was correlated with higher motivation scores, greater academic engagement and higher academic performance. Students who received timely feedback had a higher motivation than those who did not receive feedback.

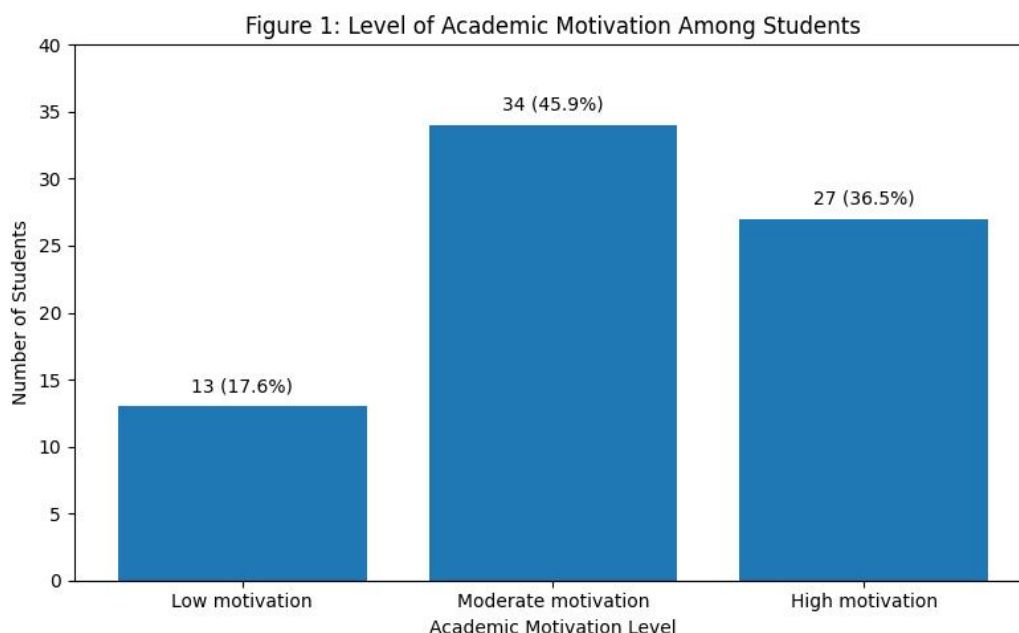


Figure 1: Level of Academic Motivation among Students

This figure shows that most students had moderate motivation 34 (45.9%), followed by high motivation 27 (36.5%), while low motivation was observed in 13 (17.6%) students.

Discussion

The present study found that formative assessment had a positive influence on academic motivation among students. Most of the participants showed moderate to high motivation, and students who regularly participated in formative assessment activities had significantly higher motivation scores than those who participated irregularly. This finding suggests that formative assessment is not only an evaluation method but also a learning-support strategy. Regular quizzes, assignments, class tests, short presentations, and feedback sessions may encourage students to remain connected with the subject, identify their learning gaps, and improve their academic confidence. Similar findings were reported by Pan and Gan, who observed that teacher formative feedback improved students' self-reflection and learning motivation (9). Panadero et al. also emphasized that formative assessment promotes self-regulated learning by helping students judge their own performance and plan further learning strategies (10).

Feedback was a significant factor in the present study that was related to academic motivation. Students who were given feedback after the formative assessment were more motivated than students who were not given feedback. Students' finding has shown that feedback helps them to realize their strengths and weaknesses and provides them a direction for improvement. Leenknecht et al. found that using formative assessment enhances student's autonomy motivation by fostering the sense of autonomy and competence (11). Likewise, Kerekovic (2021) has revealed that formative assessment in English for Specific Purposes course enhanced students' participation and motivation by incorporating continuous feedback and involvement of students (12). Overall, these results indicate that formative assessment can be enhanced when it is immediate, explicit and is not merely based on marks but is also geared towards improvement.

Similarly, the present study revealed that students who were regular with the formative assessment had higher academic scores than those who were irregular with the formative assessment. This could be because, with formative assessment, learning is ongoing and less reliance is placed on last minute revision for exams. Näsström et al. reported that formative assessment had an impact on students' motivation, as well as on the teacher's decisions in the learning process (13). Beekman et al. found that formative assessment could be used to help build self-regulation, motivation and self-efficacy skills over time (14). Similarly, Ismail et al. reported that formative assessment positively affected academic motivation, attitude toward learning, test anxiety and self-regulation as compared to summative assessment (15). The results of the present study are consistent with the results found in the above mentioned studies showing that formative assessment can enhance both motivational and academic achievement.

The results of this study are corroborated by other studies in various educational contexts. Muho and Taraj found that formative assessment methods like strategic questioning, self-assessment, peer assessment and portfolios were effective in supporting students' motivation to learn English (16). Stoyanova and Giannouli also discovered that there was a correlation between the use of online testing as a formative strategy and academic motivation during the COVID-19 pandemic (17). Estrada-Araoz et al. found that computer assisted formative assessment had an impact on the motivation, reading self-concept, autonomy and self-regulation of learners (18). The findings of these studies indicate that formative assessment can have benefits in both face-to-face and technology-based learning settings. So institutions should implement formative assessment regularly as an effective method of assessment in the process of teaching not just in final examinations.

The findings of the present study are positive, but there are some limitations to consider. The sample size was quite small and the study was carried out in one educational environment, so the results may not be representative of all students. The assessment of academic motivation was made by questioning the respondents and this type of assessment could be prone to response bias. Furthermore, the cross-sectional design indicates association, but does not establish cause and effect. Boström and Palm reported that they did not find formative assessment to necessarily make a significant difference unless it was executed properly and regularly (19). Ma et al. also pointed out that there might be different perceptions of formative assessment and satisfaction with feedback across medical curricula (20). Hence, future research is recommended to adopt larger samples, multicenter design, and intervention-based approaches to more accurately identify long-term effects of FA on academic motivation and academic achievement.

Conclusion

The present study concluded that formative assessment has a positive influence on academic motivation among students. Regular participation in quizzes, assignments, class tests, and feedback sessions was associated with higher motivation scores and better academic performance. Students who received feedback after formative assessment were more likely to show high motivation. These findings suggest that formative assessment should be used as a continuous teaching and learning strategy to improve student engagement, confidence, self-directed learning, and academic achievement. Educational institutions should encourage timely feedback, active student participation, and structured formative assessment practices to strengthen academic motivation.

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