

Effect of Instructionally Embedded Formative Assessment on Students' Motivation to Learn at Higher Education Level

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Abstract

Formative assessment is known for its positive effects it has on students' achievement. This study was designed to find out the effect of formative assessment on students' motivation at the higher education level. This study was experimental in nature; intact pre-test post-test control group design was used for data collection purpose. Sample of the study was selected conveniently, which comprised of undergraduate students. Students belonging to the experimental group were taught with instructional embedded formative assessment, whereas students belonging to the control group were taught with formal teaching methods. Students of both groups were required to fill a motivation questionnaire at the start and end of the study to check the level of intervention. Data collected through pre-test and post-test were analyzed using SPSS. The findings of the current study had suggested that instructional embedded formative assessment had a significant positive effect on students' motivation towards learning at the higher education level.

Key Words: Instructionally Embedded Formative Assessment, Motivation, Self-Efficacy, Goal Orientation, Learning Strategies

Introduction

The formative assessment had a unique philosophy behind it, which asserts that firstly, there should be the identification of learning goals; secondly, the gaps and students' learning should be evaluated according to these goals by using effective teaching strategy. [Boud and Falchikov \(2007\)](#); [Careless \(2007\)](#) and [Torrance \(2007\)](#); [Simms and George \(2014\)](#) argued that it would be reflected in students' learning and improved achievements. A meta-analysis study conducted by [Black and Wiliam \(1998a\)](#) wrote that the largest achievement gains are related to formative assessment. It was further revealed that the benefits of formative assessment to students' learning were supported by both theory and research. [McMillan \(2004\)](#) stated that students' motivation and achievement has a significant relationship with formative assessment. It is noted that the formative assessment is a broader term, but most of the studies have taken it as a tool of collecting information from students in order to improve their learning ([Cauley & McMillan, 2010](#)). [Faber, Luyten and Visscher \(2017\)](#) wrote that formative assessment could have a positive effect on motivation. According to [Clark \(2011\)](#) in classroom practice, formative assessment is considered a critical component for focusing on improved quality of learning. [Sambell, McDowell and Montgomery \(2013\)](#) wrote that learning quality is monitored by providing feedback to students' problems related to learning.

The basic aim of formative assessment is to solve students' problems related to learning which motivate them towards learning and improve their academic achievement; thus it's not related only to improved students' gain scores or achievement ([Stiggins, 2007](#); [Bennett 2011](#)). Several factors are related to improved students' achievement and learning. Research studies should be conducted on the factors which are related to students' learning improvement. [Brookhart \(2007\)](#) and [McMillan \(2004\)](#) stated that improvement in learning, for example, "motivation" is a factor which causes improvement in students' learning should be researched. [Clark \(2011\)](#); [Alishah and Dolmazi \(2013\)](#) holds the view that formative assessment can improve students' motivation.

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The present study tried to investigate the “effect of formative assessment on motivation” which is a cause of improving students’ learning which leads towards gain in achievement scores. Students’ motivation to learn might be improved through a formative assessment which provides feedback on students’ learning-related issues. This feedback persuades the students to invest more in learning. In this way, [Stiggins \(2007\)](#) writes students continue to put their efforts towards learning if the results of these efforts are desirable. In the students learning process, motivation plays a vital role. A study conducted by [Brufee \(1995\)](#) concluded that students’ learning is under their control. On the other hand, we can say that students’ desire to learn may be a cause of their learning. If a student is not having a desire to learn the teacher would fail to start their learning process. The teacher should persuade the students for this purpose. In order to improve students’ learning and achievement, there is dire need to involve students in the learning process ([Brookhart, 2008](#)).

The impact of formative assessment on students’ motivation is supported by theory, but there is a lack of empirical evidence; therefore further researches are recommended in this regard ([Yin et al., 2008](#)). According to [Nicol and Macfarlane-Dick \(2006\)](#) it is important to explore this phenomenon, e.g., the effect of formative assessment on students’ motivation in order to improve students’ learning and for the effective learning process as motivation it plays a significant role in the whole process of learning. Researches on “effect of formative assessment on students’ learning” are recommended in order to establish improved literature. The fundamental assumption postulated on the basis of the above discussion is that “formative assessment has a positive effect on students’ motivation which eventually results in improved achievement” and these results were reported in many studies. The basic aim of the present study was to investigate the “effect of formative assessment on students’ motivation to learn”. Change in students’ motivation to learn may cause through formative assessment embedded in instructions. Thus, changing students’ motivation to learn may improve their academic achievement. Therefore, the present study was aimed to investigate the “effect of instructionally embedded formative assessment on students’ motivation to learn at the higher education level.”

Literature Review

[Black and William \(2004\)](#) stated that several definitions of formative assessment are found in literature, but mutually the promotion of students’ learning is the prime purpose of formative assessment. In contrast to summative assessment which is known as “assessment of learning” also referred to as assessment of ranking, identification of competence and accountability. [Stiggins \(2007\)](#) stated that formative assessment is the ongoing task and occurs during the learning process. According to [Gioka \(2008\)](#) wrote that formative assessment is referred by different terms, and the most common name is “assessment for learning.” Formative assessment is considered an assessment for learning rather than an assessment of learning”, and it occurs while instructions are in progress ([Ruiz-Primo & Furtak, 2007](#)).

Miller and Lavin (2007) narrated that numerous types of formative assessment are found, for example, formal and non-formal assessment, convergent and divergent assessment and computer-based and computer adaptive as well. In this following paragraph, each of these types will be discussed. Teachers in convergent formative assessment assess students whether they achieve their set goals or not (Miller & Lavin, 2007). Students’ role in convergent assessment is inactive. In divergent formative assessment, on the other hand, demands from teachers to incorporate with students to achieve set goals. In this way, students take part in their own learning, and their level of motivation also increase.

There are two types of research observed by [Ruiz-Primo and Furtak \(2007\)](#) in their study. In order to focus on collecting information regarding students’ learning in a whole group setting; a planned assessment which is called a formal assessment is used. On the other hand, [Ruiz-Primo and Furtak \(2007\)](#) stated that whenever there is communication between teacher and student, an informal formative assessment which focusing on collecting information regarding students’ learning is more interactive. Students work on the activity previously created by the teacher is called formal formative assessment. The specific facets of learning are considered in this type of assessment. In this assessment, a teacher prepares topic according to the need of students after having a look at part of a lesson and the level of comprehension of the students. Along with arguing formal and informal formative assessment, [Ruiz-Primo and Furtak \(2007\)](#) went deep into the definitions. In this regard, three things regarding formal and informal formative assessment came into know. First of all, the students should be elicited, which

means they share their thinking and ideas while involving discussion and produce something from it. Secondly, students' involvement should recognize by teachers. Third, in order to support learning students' contribution might be used as a catalyst by teachers in informal formative assessment.

Ineffective learning process motivation plays a vital role. If formative assessment affects students' motivation towards learning might be used as a tool to improve students' academic achievement. The effect of formative assessment on students' achievement/ learning gains was investigated in previous studies. Students' timely feedback is associated with the gain in achievements in some previous studies. In the learning process, this feedback is used to make students more attentive and involved in the learning process. [Kirton, Hallam, Peffers, Robertson and Stobart \(2007\)](#) stated that to improve students' learning gain formative assessment is used as an effective tool, but the scope of formative assessment's benefits is broader than mere achievement gains. Formative assessment works according to students' needs and guides students' actions and teaching strategies. The feedbacks generated by the formative assessment are used to modify the teaching-learning process, and motivation towards learning is improved in this way. The other effects of formative assessment which may indirectly improve students' learning were not investigated much in previous studies, and the current study was designed to deal with this gap in the literature.

According to [Harris, Irving, and Peterson \(2008\)](#) in the teaching and learning process, formative assessment is considered one of the critical elements. In order to improve students' learning and instructions, it enables teachers to utilize information. Formative assessment as a cause to improve students' achievement was investigated in previous studies. Students' timely feedback is associated with the improved achievements is generated by formative assessment. Therefore, the purpose of the present study was to "investigate the effect of systematic use of instructionally embedded formative assessment may have on students' motivation to learn at higher education level".

Significance of the Study

Firstly, by connecting formative assessment with motivation researcher tried to add up to more in the existing literature. This study would also provide teacher, administrators and policymakers with class-room level data for harmonizing their classroom practices with student's learning needs as the surface from formative assessment. The present study will also help to understand the phases of formative assessment which has a positive effect on students' motivation which leads them towards improved achievement and reports in previous studies also. The claim that formative assessment may enhance students' motivation towards learning at higher education level would provide empirical evidence in this regard.

Objectives of the Study

In accordance with the purpose of the study, the following objectives had been formulated.

1. To find out the effect of instructionally embedded formative assessment on academic efficacy of students at the higher education level.
2. To find out the effect of instructionally embedded formative assessment on learning strategies of students at the higher education level.
3. To find out the effect of instructionally embedded formative assessment on goal orientation of students at the higher education level.

Hypotheses

Following were the hypotheses of the study:

- H₀₁: There is no significant difference between the pre-test mean academic efficacy score of the experimental and control group at the higher education level.
- H₀₂: There is no significant difference between the pre-test mean learning strategies score of the experimental and control group at the higher education level.
- H₀₃: There is no significant difference between the pre-test mean performance goals score of the experimental and control group at the higher education level.

- H₀₄: There is no significant difference between the pre-test mean achievement goals score of the experimental and control group at the higher education level.
- H₀₅: There is no significant difference between the post-test mean academic efficacy score of the experimental and control group at the higher education level.
- H₀₆: There is no significant difference between the post-test mean learning strategies score of the experimental and control group at the higher education level.
- H₀₇: There is no significant difference between the post-test mean performance goals score of the experimental and control group at the higher education level.
- H₀₈: There is no significant difference between the post-test mean achievement goals score of the experimental and control group at the higher education level.
- H₀₉: There is no significant effect of instructionally embedded formative assessment on academic efficacy of students at the higher education level.
- H₀₁₀: There is no significant effect of instructionally embedded formative assessment on learning strategies of students at the higher education level.
- H₀₁₁: There is no significant effect of instructionally embedded formative assessment on the performance goals of students at the higher education level.
- H₀₁₂: There is no significant effect of instructionally embedded formative assessment on achievement goals of students at the higher education level.

Methods of the Study

The purpose of the current study was to find out the effect of instructionally embedded formative assessment on students' motivation at the higher education level. To fulfil, the purpose of the experimental study approach was used. Close intact groups pre-test post-test was utilized for data collection purpose. This design also helped to minimize the threats to the current experiment's validity. According to the design of the study already formed, groups of the students were assigned to the control group and experiment group randomly. Students belonging to the experimental group were provided intervention (instructionally embedded formative assessment teaching strategy). Students belonging to the control group were taught with formal teaching methods.

Population

The population of this study was 370 undergraduate students of Institute of Education and Research enrolled in B.S.Ed (Hons.). The respective students and department belong to University of the Punjab, Lahore, Pakistan.

Sample and Sampling Technique

Convenient sampling technique was used to draw the sample of the study. Sample of the study comprised of 77 students, distributed in regular and self-support program of B.S.Ed. (Hons.). In the present study, 29 students of morning program were selected as the experimental group, and 48 students of self-support program were selected as a control group. These students were studying at 4th-semester students. The session of selected students was 2016-2020. and

Instrumentation

Motivation questionnaire based on a five-point Likert scale was constructed by the researcher in accordance with the current study's need. Available tools of motivation were found not in accordance with the study's purpose. Therefore the researcher constructed the Motivation questionnaire in accordance with study's context and need. After reviewing the available literature and tools on motivation, three components of the motivation were identified.

1. Academic efficacy
2. Learning strategies
3. Achievement goals

Achievement goals were further classified into achievement goal and performance goals. Thus, this questionnaire was comprised of four factors (a) academic efficacy, (b) learning strategies, (c) achievement goal (d) performance goals. These factors had closed-ended statements. Initially, this questionnaire was reviewed by the experts to ensure face validity. Then this questionnaire was pilot tested to be validated.

This motivation questionnaire was used as a pre-test and post-test to measure the level of motivation of students at the start and end of the study.

Intervention

Instructionally embedded formative assessment was the intervention of the study. This intervention was comprised of the following activities:

- a) Classwork
- b) Homework
- c) Oral quiz
- d) Observation
- e) Formative test
- f) Self-assessment
- g) Student-generated feedback
- h) Teacher's feedback oral/ written

The intervention was provided to the students belonging to the experimental group. Further, this intervention was applied for sixteen weeks a whole semester. This experiment was carried out by the researcher herself.

Data Collection

Data were collected twice a time:

- I. At the start of the study (pre-test)
- II. At the end of the study (post-test)

Students belonging to both groups, i.e. experimental group and control group, were required to fulfil the questionnaire at the start and end of the study. Data was collected using the motivation questionnaire. This questionnaire was administered by the researcher herself.

Data Analysis and Interpretations

Data were analyzed using SPSS. In the light of the analyzed data hypothesis was either rejected or accepted while the level of the significance was kept at 0.05

H₀₁: There is no significant difference between the pre-test mean academic efficacy score of the experimental and control group at the higher education level.

Table 1. Comparison of Experimental and Control Group Pre-Test Results for Academic-Efficacy

	N	Mean	t.	df	Significance
Control	29	24.69	0.279	75	0.782
Experimental	25	24.36			

Table 1 showed that the mean score of the control group and the experimental group is not significantly different. Control group (M=24.69) and experimental group (M=24.36) whereas $t = 0.279$ and $p = 0.782$. Therefore null hypothesis H₀₁ stating "There was no significant difference between the pre-test mean academic efficacy score of the experimental and control group at higher education level".

Thus, it was concluded that students had equal academic efficacy level at higher education level at the start of the study.

H₀₂: There is no Significant Difference Between the Pretest mean Learning Strategies Score of Experimental and Control Group at Higher Education Level.

Table 2. Comparison of Experimental and Control Group Pre-Test Results for Learning Strategies

Group	N	Mean	t.	df	Significance
Control	29	33.25	0.911	75	0.567
Experimental	25	32.44			

Table 2 displays that the mean score of the control group and the experimental group is not significantly different. Control group (M=33.25) and experimental group (M=32.44) whereas $t = 0.911$ and $p = 0.567$. Therefore null hypothesis H₀₂ stating that “There is no significant difference between the pre-test mean learning strategies score of the experimental and control group at higher education level”.

Thus, it is stated that students had similar learning strategies at higher education level at the start of the study.

H₀₃: There is no Significant Difference Between the Pretest mean Performance Goals Score of Experimental and Control Group at Higher Education Level.

Table 3. Comparison of Experimental and Control Group Pre-Test Results for Performance Goals

Group	N	Mean	t.	df	Significance
Control	29	8.69	-1.674	75	0.102
Experimental	25	9.08			

Table 3 depicts that the mean score of the control group and the experimental group is not significantly different. Control group (M=8.69) and experimental group (M=9.08) whereas $t = -1.674$ and $p = 0.102$. Therefore null hypothesis H₀₃ stating “There is no significant difference between the pre-test mean performance goals score of the experimental and control group at higher education level”.

Thus, it is suggested that students had similar performance goals at higher education level at the start of the study.

H₀₄: There is no Significant Difference Between the Pre-test mean Achievement Goals Score of Experimental and Control Group at Higher Education Level.

Table 4. Comparison of Experimental and Control Group Pre-Test Results for Achievement Goals

Group	N	Mean	t.	df	Significance
Control	29	21.56	0.510	75	0.410
Experiment	25	21.72			

Table 4 portrays that the mean score of the control group and the experimental group is not significantly different. Control group (M=21.56) and experimental group (M=21.72) whereas $t = 0.510$ and $p = 0.410$. Therefore null hypothesis H₀₄ stating “There is no significant difference between the pre-test mean achievement goals score of the experimental and control group at higher education level”.

Thus, it is submitted that students had similar achievement goals at higher education level at the start of the study.

H₀₅: There is no Significant Difference Between the Post-Test Mean Academic Efficacy Score of Experimental and Control Group at Higher Education Level.

Table 5. Comparison of Experimental and Control Group Post-Test Results for Self-Efficacy

	N	Mean	t.	df	Significance
Control	29	24.25	-2.294	75	0.027
Experimental	25	27.12			

$p=0.05^*$

Table 5 demonstrates that post-test mean score of the control group and experimental group is significantly different. Control group ($M=24.25$) and experimental group ($M=27.12$) whereas $t = -2.294$ and $p = 0.027$. The mean score of experimental groups is significantly high. Therefore null hypothesis H_{05} stating “There is no significant difference between the post-test mean academic efficacy score of the experimental and control group at higher education level” is rejected.

Thus, it is established that students taught by instructionally embedded formative assessment had high academic efficacy level at higher education level at the end of the study.

H₀₆: There is no Significant Difference Between the Post-Test Mean Learning Strategies Score of Experimental and Control Group at Higher Education Level.

Table 6. Comparison of Experimental and Control Group Post-Test Results for Learning Strategies

Group	N	Mean	t.	df	Significance
Control	29	31.56	-2.482	75	0.021
Experimental	25	35.44			

$p=0.05^*$

Table 6 exhibits that post-test mean score of the control group and experimental group is significantly different. Control group ($M=31.56$) and experimental group ($M=35.44$) whereas $t = -2.482$ and $p = 0.021$. The mean score of experimental groups is significantly high. Therefore null hypothesis H_{06} stating “There is no significant difference between the post-test mean learning strategies score of experimental and control group at higher education level” is rejected.

Thus, it recognizes that students taught by instructionally embedded formative assessment had high learning strategies level at higher education level at the end of the study.

H₀₇: There is no Significant Difference Between the Post-Test Mean Performance Score of Experimental and Control Group at Higher Education Level.

Table 7. Comparison of Experimental and Control Group Post-Test Results for Performance Goals

Group	N	Mean	t.	df	Significance
Control	29	7.81	0.100	75	0.917
Experiment	25	8.84			

$p=0.05^*$

Table 7 exhibits that post-test mean score of the control group and experimental group is not significantly different. Control group ($M=7.81$) and experimental group ($M=8.84$) whereas $t = 0.100$ and $p = 0.100$. The mean score of experimental groups is not significantly high. Therefore null hypothesis H_{06} stating “There is no significant difference between the post-test mean performance goals score of the experimental and control group at higher education level” is accepted.

Thus, it is concluded that students taught by instructionally embedded formative assessment and students taught by formal teaching strategy had similar performance goals at the end of the study.

H₀₈: There is no Significant Difference Between the Post-Test Mean Achievement Goals Score of Experimental and Control Group at Higher Education Level.

Table 8. Comparison of Experimental and Control Group Post-Test Results for Achievement Goals

Group	N	Mean	t.	df	Significance
Control	29	21.31	0.812	75	0.422
Experiment	25	48.44			

$p=0.05^*$

Table 8 reveals that post-test mean score of the control group and experimental group is not significantly different. Control group ($M=21.31$) and experimental group ($M=48.44$) whereas $t = 0.812$ and $p = 0.422$. The mean score of experimental groups is not significantly high. Therefore null hypothesis stating “There is no significant difference between the post-test mean achievements goals score of the experimental and control group at higher education level” is accepted.

Thus, it is concluded that students taught by instructionally embedded formative assessment and students taught by formal teaching strategy had similar achievement goals at the end of the study.

H₀₉: There is no Significant Effect of Instructionally Embedded Formative Assessment on Academic Efficacy of Students at Higher Education Level.

Table 9. Comparison of Experimental Group's Pre & Post-Test Results for Self-Efficacy

Variable	X1	X2	t	df	Significance
Self-efficacy	24.360	27.148	-2.540	24	.018

$n=25$

$p=0.05^*$

Table 9 describes the pre-test and post-test mean score of academic efficacies for the experimental group. It is evident that the experimental group's mean score before intervention (24.360) and mean score after an intervention (27.148) whereas t value (-2.540) is significant at 0.018 level of significance. Thus, the null hypothesis stating that there is no significant effect of instructionally embedded formative assessment on academic efficacy of students at higher education level is rejected.

Therefore it is established instructionally embedded formative assessment had a significant effect on academic efficacy of students at the higher education level.

H₀₁₀: There is no Significant Effect of Instructionally Embedded Formative Assessment on Learning Strategies of Students at Higher Education Level.

Table 10. Comparison of Experimental Group's Pre & Post-Test Results for Learning Strategies

Variable	X1	X2	t	df	Significance
Learning Strategies	29.440	32.440	-3.151	24	.004

$n=25$

$p=0.05^*$

Table 10 defines the pre-test and post-test mean score of learning strategies for the experimental group. It is evident that the experimental group's mean score before intervention (29.440) and mean score after an intervention (32.440) whereas t value (-3.151) is significant at 0.018 level of significance. Thus, the null hypothesis stating that there is no significant effect of instructionally embedded formative assessment on learning strategies of students at higher education level is rejected.

Therefore it is clear that instructionally embedded formative assessment had a significant effect on learning strategies of students at the higher education level.

H_{o11}: There is no Significant Effect of Instructionally Embedded Formative Assessment on Performance Goals of Students at Higher Education Level.

Table 11. Comparison of Experimental L Group's Pre & Post-Test Results for Performance Goals

Variable	X1	X2	t	df	Significance
Performance Goal	9.080	8.840	.458	24	.651

$n=25$

$p=0.05^*$

Table 11 outlines the pre-test and post-test mean score of performance goals for the experimental group. It is clear that the experimental group's mean score before intervention (9.080) and mean score after the intervention (8.840) whereas t value (.458) is significant at 0.651 level of significance. Therefore null hypothesis stating that there is no significant effect of instructionally embedded formative assessment on performance goals of students' at higher education level is accepted

Therefore it is acknowledged that instructionally embedded formative assessment had no significant effect on performance goals orientation of students at the higher education level.

H_{o12}: There is no Significant Effect of Instructionally Embedded Formative Assessment on Achievement Goals of Students' at Higher Education Level.

Table 12. Comparison of Experimental Group's Pre & Post-Test Results for Achievement Goals

	X1	X2	t	df	Significance
Achievement Goal	19.748	48.440	-1.238	24	.228

$n=25$

$p=0.05^*$

Table 12 summarized the pre-test and post-test mean score of achievement goals for the experimental group. It is evident that the experimental group's mean score before intervention (19.748) and mean score after an intervention (48.440) whereas t value (-1.238) is significant at 0.228 level of significance. Therefore null hypothesis stating that there is no significant effect of instructionally embedded formative assessment on achievement goals of students at higher education level is accepted

Therefore it is admitted that instructionally embedded formative assessment had no significant effect on achievement goals orientation of students at the higher education level.

Conclusions

On the basis of the current study findings, the following conclusions have been drawn.

1. Higher education level students' motivation towards learning was significantly improved by using instructionally embedded formative assessment at the higher education level.
2. By using instructionally embedded formative assessment, the academic efficacy of students at higher education level was improved significantly at the higher education level.
3. The learning strategies of students were also enhanced by using instructionally embedded formative assessment at the higher education level.
4. It is evident from the findings that instructionally embedded formative assessment didn't significantly improve students' achievement goals and performance goals at the higher education level.
5. Therefore, it is evident from the findings that there is a positive effect of instructionally embedded formative assessment on students' motivation at the higher education level.

Discussions

The study was aimed to investigate “effects of instructionally embedded formative assessment on students’ motivation at the higher education level.” in this experimental study students’ motivation towards learning was measured through pre-test and post-test before and after the intervention. The sub-scales of motivation were “academic-efficacy”, “learning strategies”, “performance goals” and “achievement goals.” The gain scores of academic efficacies were compared in order to know the effectiveness of the intervention. It was concluded that after the use of instructionally embedded formative assessment students’ academic efficacy was improved significantly. [Rakoczy et al., \(2019\)](#) reported similar results. It was reported by [Brookhart, Moss and Long \(2009\)](#) that by identifying students’ learning related problems and engaging them in classroom activities by using instructionally embedded formative assessment students’ learning might be improved. Students’ achievement may improve by improving their self-efficacy through significant use of embedded formative assessment ([Cauley & McMillan, 2010](#)). It was also reported in this present study that there was a significant positive effect of instructionally embedded formative assessment on students’ learning strategies at the higher education level. The results of the comparison between pre-test and post-test were reported, which make students empowered by providing timely feedback. Students put more efforts into learning when they got empowered. Results further revealed that students’ performance goals at a higher education level were not improved by using instructionally embedded formative assessment. It is evident [Pintrich \(2000\)](#) wrote that performance goals are the goals of surface level, where students with their peers try to compete. Midgely, Kaplan, and Middleton (2001) the rote memorization and surface learning occur in this way. [Yin et al. \(2008\)](#) narrate students’ conceptual change is being held through formative assessment. It is revealed from the findings that students’ achievement goal orientation at higher education level did not improve significantly by using instructionally embedded formative assessment. The findings did not align with the findings of the literature, which resulted that students’ achievement goal orientation may lead towards better through descriptive feedback by using formative assessment. A study conducted by [Husman, Brem, and Duggan \(2005\)](#) concluded that there was no significant effect of students’ performance and achievement goal orientation by using formative assessment, it might be due to the other factors. [Yin et al. \(2008\)](#) stated that the embedded formative assessment is a critical constituent of instructional process if a study fails to find out the effectiveness of formative assessment the results didn’t disconfirm its effectiveness. Overall this study had found that instructionally embedded formative assessment had a positive effect on students’ motivation towards learning as reported by [Evans, Zeun, and Stanier \(2014\)](#) who also reported similar results.

Recommendations

Following recommendations were formed from the present study.

1. Students’ motivation towards learning might be improved by using formative assessment embedded instructions; therefore, it is recommended to use these instructions in classroom settings at 5th higher education level.
2. The formative assessment might be used as a “tool” to improve the students’ motivation at the higher education level.
3. It is recommended that the study might be conducted again at elementary and secondary level on the large sample on different grades.
4. This study on instructionally embedded formative assessment might be replicated for a longer period of time and better results at different programs of higher education level.

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