FORMATIVE ASSESSMENT AND FEEDBACK FOR EVALUATING STUDENTS' LEARNING EXPERIENCE : EVIDENCE FROM COIMBATORE DISTRICT

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ABSTRACT

This study examines the impact of formative assessment and feedback on the learning experience of students in higher education in India. The binary logistic regression model showed that formative assessments and feedback had a positive influence on students' learning experiences. Timely feedback and assessing responses helped students understand their position among peers. A multi-sensory approach to learning is essential, and assessments are significant in measuring student improvements. The research gap identified is the need to investigate the conditions under which assessment tools support classroom engagement and feedback for better learning experiences.

Keywords : *Formative Assessment, Feedback, Student Engagement, Learning Experience, Higher Education in India.*

Introduction

"Learners need endless feedback more than they need endless teaching".

Quality assessment and quality learning are interdependent. The teaching-learning process aims at the transformation of knowledge, enhancing skills, and formation of attitudes, values, and behavior. The challenges in student learning have changed many folds owing to factors like the generation gap, exposure to technological innovations, changes in learning patterns, and reduced attention span of students. This necessitates the fact that the teaching-learning process includes Activity-Based Learning (ABL), which will enrich classroom engagement, prepare need-based assessment and evaluation methods, and provide timely assessment-evaluation feedback to the students.

Review of Literature and Need for the Study

Engaged learning creates an active cognitive process in students that fosters creative thinking, problem-solving, and evaluation. The Engagement Theory by Kearsley and Schneiderman highlights that meaningful engagement of students is essential to be facilitated with interaction and activities during the teaching-learning process. The use of technology can enhance student engagement in the learning process, and their perceptions of evaluation and assessment can influence their learning approaches. Formative assessments can motivate students and create awareness of their learning abilities, while assessments are crucial in measuring improvements of students at individual and institutional levels in higher education. Timely feedback is also critical for better interactions among educators and learners and helps students understand their position among their peers. A multi-sensory approach to learning is essential, and formative and summative assessments play a vital role in enriching students' learning experiences. However, there is a research gap in understanding the conditions under which assessment tools used for classroom engagement and feedback support students' learning experiences. The study was carried out to identify the linear relationship between the conditions of assessment and feedback on the learning experience (Struyven et al., 2005; Weurlander et al., 2012; Gibbs & Dunbar-Goddet, 2009; Coates & Zlatkin-Troitschanskaia, 2019; Dawson et al., 2019; Bhamre, Vaidya & Nikam, 2021).

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Methodology and Sampling Design

The study used the construct of Gibbs and Simpson (2003), which identified eleven conditions for assessment that best supports student learning, to develop a structured questionnaire. Data were collected from 200 undergraduate engineering students in Coimbatore, Tamil Nadu, using random sampling. The study utilized binary logistic regression to predict the probability of success in the student's learning experience based on the feedback and student effort parameters. The variables of the model were categorized based on the feedback from the students as given in Table 1.

Table 1

Variables Used in the Study

Variables	Dependent/Independent Variable
Students' Learning Experience	Dependent
Quantity and Distribution of Student Effort	Independent
Quality and Level of Student Effort	Independent
Quantity and Timing of Feedback	Independent
Quality of Feedback	Independent
Feedback Content Responses	Independent

Analysis and Findings

Teachers play a crucial role in supporting students' learning experiences and helping them become self-regulated learners (Nicol and Dick, 2006). Formative assessments are essential in guiding students throughout their academic journey and facilitating a smooth transition from the initial to final stages of learning. The study collected data on students' perspectives on formative assessment components and feedback for a particular course, and Table 2 presents the frequency and percentage distribution of their responses.

Table 2

Distribution of Variables based on their Frequency and Percentage

Variables	Codes	Frequency	Percentage
Students' Learning Experience	Satisfied	182	91
	Not Satisfied	18	9
	Total	**200**	**100**
Quantity and Distribution of Student Effort	Satisfied	145	72.5
	Not Satisfied	55	27.5
	Total	**200**	**100**
Quality and Level of Student Effort	Satisfied	177	88.5
	Not Satisfied	23	11.5
	Total	**200**	**100**
Quantity and Timing of Feedback	Satisfied	139	69.5
	Not Satisfied	61	30.5
	Total	**200**	**100**
Quality of Feedback	Satisfied	161	80.5
	Not Satisfied	39	19.5
	Total	**200**	**100**
Feedback Content Responses	Satisfied	157	78.5
	Not Satisfied	43	21.5
	Total	**200**	**100**
Source : Estimates obtained from SPSS V22			

The table of frequency shows student responses and is used as the basis for the binary logistic regression model, which predicts the occurrence of 'satisfaction' or 'dissatisfaction' with the student's learning experience based on predictor variables. The Chi-Square value of the model was found to be significant, indicating a good fit as shown in Table 3.

Table 3

Model Coefficients

	Chi-Square	df	Sig.
Step 1 Step	30.89	5	0.00**
Block	30.89	5	0.00**
Model	30.89	5	0.00**
** Significant at the 0.05 level. Source: Estimates obtained from SPSS V22			

The Cox & Snell R Square and Nagelkerke R Square values were used to calculate the explained variation in the dependent variable by the predictor variables. The values obtained in the model range from 0.14 to 0.32, indicating that the explained variation in "students' learning experience" ranges from 14% to 32%. The classification table from the binary logistic regression model shows that the overall percentage of correctly classified students' learning experience is 93.5%, as shown in Table 4.

Table 4

Classification Table

Observed		Predicted		
		Students' Learning Experience		Percentage Correct
		Satisfied	Not Satisfied	
Students' Learning Experience	Satisfied	181	1	99.5
	Not Satisfied	12	6	33.5
Overall Percentage				**93.5**

Source: Estimates obtained from SPSS V22

The coefficients of the predictor variables, the Wald statistic, and the Odds ratio are presented in Table 5.

Table 5

Regression Estimates

Variables	B	S.E.	Wald	df	Sig.	Exp (β)	95% C.I. for Exp (B)	
							Lower	Upper
Quantity and Distribution of Student Effort	0.22	0.59	0.14	1	0.71	1.25	0.39	3.95
Quality and Level of Student Effort	0.5	0.69	0.52	1	0.47	1.65	0.43	6.36
Quantity and Timing of Feedback	1.87	0.62	9.12	1	**0.00****	6.48	1.93	21.79
Quality of Feedback	0.41	0.65	0.41	1	0.52	1.51	0.43	5.36
Feedback Content Responses	1.88	0.6	9.81	1	**0.00****	6.56	2.02	21.27
Constant	-9.1	1.61	31.84	1	**0.00****	0		

** Significant at the 0.05 level. Source: Estimates obtained from SPSS V22

The study found that the "Quantity and Timing of Feedback " (P = 0.00) and "Students' Responses to Feedback" (P = 0.00) significantly influenced the students' learning experience. The odds of the student's learning experience were 7 times greater for students who were satisfied with the quantity, timing, and content of the feedback. Therefore, it can be concluded that formative assessments and feedback are crucial for enriching students' learning experiences. These findings are consistent with the arguments made by Bennett (2011), Sadler (2010), and Nicol and Dick (2006) regarding the importance of feedback and formative assessments in promoting self-regulated learning.

Conclusion

The study aimed to assess the influence of formative assessments and feedback on students' learning experiences in higher education. The binary logistic regression model revealed that formative assessments and the quantity, timing, and content of feedback positively influenced students' learning experiences. As Education 4.0 emphasizes holistic skill development, this study highlights the role of formative assessments and feedback in shaping pedagogy and curriculum. The findings provide a basis for future research to measure the impact of feedback and assessments on student skills.

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